MECHANICAL ENGINEERING

PUBLISHED BY
THE AMERICAN SOCIETY OF
MECHANICAL ENGINEERS

INDEX TO VOLUME 93

January-December 1971

THE AMERICAN SOCIETY OF
MECHANICAL ENGINEERS

345 East 47th Street New York, N. Y. 10017

Index to
MECHANICAL ENGINEERING

Volume 93, January-December 1971

A

Aas, H. G.
Holographic Analysis of Turbine Blades [71-GT-84] (*A*) J1 41
Abandoned Automobiles
See Vehicles, Motor
Abbott, Robert E. elected Fellow ASME ..... D 81
Abdelhamid, A. N.
Discrete Frequency Noise from Lifting Fans [71-GT-12] (*A*) J1 36
Abdulhadi, F.
Vibrations of Multicore Orthotropic Sandwich Plates [71-Vibr-48] (*A*) ..... N 52
Abey, A. E.
Shear Strength of Beryllium, Uranium, and Tungsten as a Function of Strain, Strain Rate, and Pressure [70-WA/PT-2] (*A*) ..... Mr 65
Ableson, H. I.
A Prediction of Water-Entry Cavity Shape [70-WA/FE-8] (*A*) ..... F 72
Abramson, H. Norman elected Fellow ASME ..... N 90
Absorbers
The Autoparametric Vibration Absorber [71-Vibr-49] (*A*) ..... N 52
Damped Isolation and Undamped Vibration Absorber Model for Vibration Control [71-Vibr-45] (*A*) ..... N 52
Time Domain Optimisation of a Vibration Absorber [70-WA/DE-5] (*A*) ..... F 66
Use of Optimization Techniques in Identifying a Shock Absorber: An Elementary Experience in Design Education [71-Vibr-69] (*A*) ..... N 53
Absorption
Experimental and Theoretical Study of Absorption in an Anisotropically Scattering Medium [71-HT-20] (*A*) ..... O 62
Solar-Powered Refrigeration [based on 70-WA/Sol-5] ..... Je 22
Economic Aspects of Solar-Powered Absorption Refrigeration [70-WA/Sol-5] (*A*) ..... F 65
Abu-Romia, M. M.
Plasma Radiation Effects in Tube Arc Heating [71-HT-18] (*A*) ..... O 62
Acceleration
Critical-Induced Acceleration for Shock Propagation in Polymethyl Methacrylate [71-APM-14] (*A*) ..... S 56
A Direct Method for Analyzing Accelerations in Complex Mechanisms [71-APM-X] (*A*) ..... O 60
Experimental Hydrodynamics of the Accelerated Turbulent Boundary Layer With and Without Mass Injection [71-HT-F] (*A*) ..... N 58
Velocity and Acceleration Synthesis of Four-Bar Mechanisms by Curve Matching [70-Mech-42] (*A*) ..... Ja 50
Accelerometers
Transient Method of Calibrating a Piezoelectric Accelerometer for the High g-Level Range [71-Vibr-43] (*A*) ..... N 52
Acharya, H. S.
Transient Response of a Vibration Isolation System [71-Vibr-33] (*A*) ..... N 50
Achenbach, J. D.
Stresses in Multilayered Structures Under High-Rate Pressure Loads [70-WA/UnT-14] (*A*) Je 46
Acker, David D.
Placing the Management of Defense and Space Programs in Perspective [70-WA/Mgt-5] (*A*) Mr 58
Ackeret, Jakob receives Daniel Guggenheim Medal from ASME, SAE, AIAA at 1970 WAM ..... Ja 75
Ackerman, A. J.
Slow Death of a Free Profession [70-WA/Av-1] (*A*) ..... F 68
Acoustical Society of America presents Trent-Crede Award to Raymond D. Mindlin ..... D 80
Acoustics
On Acoustic Propagation and Critical Mass Flux in Two-Phase Flow [71-HT-K] (*A*) ..... N 58
Acoustical Holography (*BTR*) ..... F 47
Application of a Disorder Measure to Acoustical and Structural Models [70-WA/DE-1] (*A*) F 65, Ap 55
Listen at Him (*PB*) ..... D 43
Only a Light Assist (*PB*) ..... My 42, 49
The Sky Above the Noise Below (*EN*) ..... Je 60
Some Sound Research (*BTR*) ..... Ag 34
Transient Interaction of Spherical Acoustic Waves and a Spherical Elastic Shell [70-WA/APM-29] (*A*) ..... Je 46
"Voiceprint" Identification (*BTR*) ..... Ja 31
Acrylics
Acrylic Pressure Hull for Submersible NEMO [71-UnT-2] (*A*) ..... D 46
Behavioral and Stress Analysis of the NEMO Type Acrylic Hulls [70-WA/UnT-8] (*A*) ..... Je 45
Fabrication of NEMO Type Spherical Acrylic Capsules for Underwater Vehicles [70-WA/UnT-4] (*A*) ..... Je 45
Spherical Acrylic Pressure Hulls for Undersea Exploration [70-WA/UnT-3] (*A*) ..... Je 45
Adamowicz, M.
Optimum Allocation of Two-Dimensional Shapes [71-Vibr-68] (*A*) ..... N 54
Adams, J. R.
Selection and Training of Power Engineers [71-IPwr-2] (*A*) ..... S 53
Adams, N. J. I.
Stress Concentration in a Cylindrical Shell Containing a Circular Hole [71-PVP-9] (*A*) ..... Ag 50
Adda, Y. G.
Phenix Design and Preliminary Studies on 1000-MWe Fast Reactor [71-NE-18] (*A*) J1 44
Adelmann, Gerald S. deceased ..... Ja 107
Adhesion, Adhesives
Adhesive-Bonded Structural Joints (*NTB*) J1 31
Controlling Structural Fatigue Through Adhesive Bonding [71-DE-27] (*A*) J1 47
Nondestructive Sonic Testing of Adhesive-Bonded Composites (*NTB*) J1 30
Statistical Analysis of Adhesion Performance of Locomotives [70-WA/RR-8] (*A*) ..... Je 42
The Super Adhesive (*BTR*) ..... F 57
Adiabatics
On Entropy Production in Adiabatic Flow in Turbomachines [71-FE-3] (*A*) ..... Ag 54
Adidam, S. R.
Dual Formulation of Variational Problems in Optimal Design [71-Vibr-110] (*A*) ..... D 54
Adkins, R. W.
Basic Geometric Methods in Helical Lobe Compressor Design [70-WA/FE-23] (*A*) ..... F 74
Adler, L. S.
Taking the Systems Approach to Lubricating Machines [71-DE-49] (*A*) ..... Ag 47
Advani, S. H.
Analysis and Physiological Monitoring of the Human Left Ventricle [70-WA/BHF-14] (*A*) Ap 63
Aerodynamics
Aerodynamic Approximations for Unsteady Supersonic Flow Through Ducts of Revolution [71-Vibr-23] (*A*) ..... N 60
Aerodynamic Development of a Radial Compressor for a 10-kw Turboalternator [70-WA/GT-7] (*A*) My 56
On Aerodynamic Disturbances Caused by Single Hot-Wire Probes [71-APM-T] (*A*) ..... O 59
Determination of Aerodynamic Behavior of Cantilevered Stacks and Towers of Circular Cross Section [71-Pet-36] (*A*) ..... D 51
On the Prediction of Aerodynamically Created Sound Pressure Level of Control Valves [70-WA/FE-28] (*A*) ..... F 74
The Suspension Bridge: Its Aeroelastic Problems [71-Vibr-38] (*A*) ..... N 51
Aeronautics
Applications of Self-Organising and Learning Control to Aeronautical and Industrial Systems [71-DE-22] (*A*) J1 46
Holographic Characterization of Aerospace Components [71-GT-74] (*A*) J1 40
Africa
African Engineers Federation (*OS*) ..... Mr 52
Africk, D. J.
Forced Vibration of a Beam with Time-Dependent Boundary Condition [71-Vibr-32] (*A*) ..... N 50
Age, Aged, Aging
Better Public Transportation for Aged (*NB*) D 67
How Old/Young Is the Grad? (*EN*) ..... D 69
Agrawal, G. L.
Response of a Semi-Infinite Elastic Solid to an Arbitrary Line Load Along the Axis [71-APMW-1] (*A*) ..... N 55
Agronin, T. deceased ..... N 92
Aiken, W. B.
Applications of Room Temperature Three-Dimensional Photoelastic Techniques [71-PVP-61] (*A*) S 50
Air
Air Monitoring with the Alpha Particle (*BTR*) Ap 44
Air Resources Training (*EN*) ..... O 75
Application of a Gas Turbine to Compressed Air Supply Requirements [71-GT-48] (*A*) ..... Ag 46
Engineering a Better Environment
1: Environmental Dangers Challenge Design Engineers [based on 70-DE-79]
Compatibility (*C*) ..... F 77
Conserving Water (*C*) ..... Ja 56
10: Designing an Air Monitoring Facility Ag 24
Air Monitoring Facility (*C, AC*) ..... N 60
Gas Turbine Blade Heat Transfer Augmentation by Impingement of Air Jets Having Various Configurations [71-GT-9] (*A*) ..... Ag 44
Heat Transfer Characteristics in Air Fluidized Solids up to 900 F [70-WA/Temp-3] (*A*) My 54
Heat-Transfer Parameters and Transport Properties for Air and Jet Fuel-Air Mixtures [71-HT-41] (*A*) ..... N 58
The Interaction of Air Motion, Fuel Spray, and Combustion in the Diesel Combustion Process [71-DGP-2] (*A*) ..... Ag 48
An Interferometric Technique for Temperature and Concentration Measurement for an Air-Water Interface [70-WA/Temp-1] (*A*) ..... My 54
Laminar Film Condensation from a Steam-Air Mixture Undergoing Forced Flow Down a Vertical Surface [71-HT-E] (*A*) ..... N 58
Low-Noise Flow Valve (*NTB*) ..... O 45
New Sources Listed for EPA Air Standards (*NB*) Je 58
New Zinc-Air Battery (*OS*) ..... D 44
Operational Logistics in an Air Pollution Monitoring Network [70-WA/PTC-3] (*A*) ..... My 52
Radiative Energy Transfer Within a Nonisothermal Air Plasma [71-HT-G] (*A*) ..... N 58
Split Laser Beam (*PB*) ..... Je 36
Two-Dimensional Diffuser Performance with Subsonic, Two-Phase, Air-Water Flow [71-FE-20] (*A*) ..... S 51

CODE

Months denoted by two boldface letters are:					
January	Ja	(*A*)	Abstract	(*Ed*)	Editorial
March	Mr	(*AC*)	Author's(s') Closure	(*EN*)	Education News
April	Ap	(*BR*)	Book Review	(*NB*)	News Briefs
May	My	(*BTR*)	Briefing the Record	(*NR*)	ME News Roundup
June	Je	(*C*)	Correspondence	(*NTB*)	NASA Tech Briefs
July	Jl	(*CB*)	Current Books	(*OS*)	Overseas Survey
August	Ag	(*D*)	Discussion	(*PB*)	Photo Briefs
		(*EB*)	Education Brief	(*TL*)	Technical Literature
		(*ECA*)	Executive Committee Actions		

Air Conditioning
See also American Society of Heating, Refrigerating and Air-Conditioning Engineers
Apartment Air Conditioning (*NB*).....Ap 72
"Off-Peak" Air Conditioning (*BTR*).....N 42
Thermal Energy Requirements of Air-Conditioning Systems [70-WA/Ener-4] (*A*).....Ap 61
Air Conditioning Industry
Air Conditioning [1971 outlook] (*NR*).....F 88
Air Cushioning
See also Vehicles, Air-Cushioned
Air-Cushioned Drill (*BTR*).....O 47
Air Handlers
Air Handling Equipment (*OS*).....S 47
Air Pollution
See Pollution, Pollution Control
Air Pollution Control Association
Air Quality Standards Restrictive (*NB*).....O 72
Air Quality
See Pollution, Pollution Control
Air Transport
See Vehicles, Air and Aviation
Aircraft
See Vehicles, Air and Aviation; Vehicles, Space
Airfoils
Manufacturing Approaches to Resin Matrix Composite Airfoils for Gas Turbine Engines [71-GT-47] (*A*).....Ag 45
The Radiation of Sound from an Airfoil Immersed in a Laminar Flow [71-GT-4] (*A*).....Ag 44
Airports
See also Terminals, Passenger
Republic Airport Transportation Center at Farmingdale, N. Y.
Plan for Transportation Complex (*NB*)....O 73
Airrow-Drill
Air-Cushioned Drill (*BTR*).....O 47
Akiyama, M.
Experiments on the Onset of Longitudinal Vortices in Laminar Forced Convection Between Horizontal Plates [71-HT-1] (*A*).....O 60
Akkas, N.
Buckling and Postbuckling Behavior of Clamped Shallow Spherical Shells Under Axisymmetric Ring Loads [71-APM-9] (*A*).....S 56
Akoz, A. Y.
Thermal Stresses in an Orthotropic Elastic Semispace [71-APM-18] (*A*).....S 56
Alaska
See Arctic Environment
Alberstein, D.
In-Service Inspection of San Onofre Nuclear Generating Station Units 1, 2, and 3 [70-WA/NE-5] (*A*).....My 55
Alcaraz, E.
On Aerodynamic Disturbances Caused by Single Hot-Wire Probes [71-APM-T] (*A*).....O 59
Alem, N.
A Porous Black Model for Cancellous Bones [70-WA/BHF-2] (*A*).....Ap 62
Alexander, J. A.
Metal Matrix Composite Fabrication Procedures for Gas Turbine Engine Blades [71-GT-46] (*A*) Jl 38
Alexander, L. G.
Performance Characteristics of Corrugated Tubes for Vertical Tube Evaporators [71-HT-30] (*A*) O 63
Alford, R. N.
Combustion Characteristics of Large Gas Engines [71-DGP-6] (*A*).....Ag 48
Algebra, Boolean
An Application of Boolean Algebra to the Motion of Epicyclic Drives [70-Mech-28] (*A*).....Ja 48
Algorithms
Parameter Tuning of Linear DDC Algorithms [70-WA/Aut-16] (*A*).....F 70
Allan, J. J., III
Graphically Accessed Design System That Can Employ Existing Algorithms [71-Vibr-70] (*A*) N 54
Allen, D. L.
Natural Frequency Determination of Long Span Floor Slabs [71-Vibr-8] (*A*).....N 48
Allen, Robert D. elected a vice-president of Bechtel Corp. and Bechtel Inc. .....D 80
Allen, S. J.
Lubrication Theory for Micropolar Fluids [71-APM-N] (*A*).....O 59
Alloys
See also Design Engineering Conference; Steel
Effects of Tension-Compression Cycling on Fatigue Crack Growth in High Strength Alloys [71-PVP-2] (*A*).....Ag 49
Embrittlement of Precipitation Hardenable Nickel-Base Alloys by Oxygen [71-Met-D] (*A*)...Ag 48
Exploitation of Cu-Rich Damping Alloys
Part 1—The Search for Alloys with High Damping at Low Stress [71-Vibr-106] (*A*).....D 54
Fatigue-Crack Growth Rates and Fracture Toughness Study of Welded Aluminum Alloy 5083 [70-WA/PVP-5] (*A*).....F 76
Laboratory Procedures for Evaluating High-Temperature Corrosion Resistance of Gas Turbine Alloys [70-WA/CD-2] (*A*).....Ap 65
Making Specialty Steel in a Special Way (*BTR*) Ja 36
The Prediction of Press Loads in Deep Drawing Titanium 6 Al 4V, Stainless Steel AISI 304, and Inconel X Alloys at Various Conditions of Lubrication at Elevated Temperatures [70-WA/Prod-26] (*A*).....Mr 63
Short-Time, Biaxial Creep of an Aluminum Alloy with Abrupt Changes of Temperature and State of Stress [70-WA/APM-41] (*A*).....Je 47
Alperi, R. W.
Liquid Distributions of a Low Pressure Drop Injection System-Gas Turbine "Vaporizer" Design [71-GT-38] (*A*).....Ag 45
Alpha Particles
Air Monitoring with the Alpha Particle (*BTR*) Ap 44
Altan, T.
Prediction of Loads and Stresses in Closed-Die Forging [70-WA/Prod-8] (*A*).....Mr 60
Altman, Manfred
Engineering a Better Environment
7: The Environment-Energy Balance: Needed Actions.....My 33
Alumina
Spectral Radiation from Alumina Powder on a Metallic Substrate [70-WA/HT-14] (*A*)..Ap 59
Aluminum
All-Aluminum Engine Block (*BTR*).....F 59
Aluminum Know-How (*OS*).....F 63
Development of Borsic-Aluminum Composite Fan Blades for Supersonic Turbofan Engines [71-GT-90] (*A*).....Jl 42
An Experimental and Numerical Study of Elastic Strain Waves on the Center of a 6061-T6 Aluminum Bar [71-APMW-22] (*A*).....N 57
Fatigue-Crack Growth Rates and Fracture Toughness Study of Welded Aluminum Alloy 5083 [70-WA/PVP-5] (*A*).....F 76
The "Johnson-Sea-Link"—The First Deep-Diving Welded Aluminum Submersible [70-WA/UnT-6] (*A*).....Je 45
More Aluminum in Cars (*OS*).....Ag 42
9500-Ton Extrusion Press (*OS*).....My 50
Salvaging Surface-Damaged Castings (*NTB*) Ja 35
Short-Time, Biaxial Creep of an Aluminum Alloy with Abrupt Changes of Temperature and State of Stress [70-WA/APM-41] (*A*).....Je 47
Some Tentative Weibullian Descriptions of the Properties of Steels, Aluminums, and Titaniums [71-Vibr-64] (*A*).....N 53
Alves, A. C. deceased.....Je 80
Amann, Charles A. promoted to assistant head of newly created Gas Turbine Research Department at General Motors Research Laboratories, Warren, Mich. .....D 80
Amazigo, J. C.
Asymptotic Formulas for the Buckling Stresses of Axially Compressed Cylinders with Localized or Random Axisymmetric Imperfections [71-APM-29] (*A*).....S 57
Ambrose, W. G.
The Santa Fe Railway Locomotive Simulator and Coordinated Engineer's Training Program [71-RR-3] (*A*).....S 51
American Academy of Environmental Engineers names Harrison P. Eddy, Jr., and Elmer R. Kaiser Diplomates.....My 88
American Automatic Control Council seeks Eckman (Donald P.) Award Nominees My 74
Automatic Control Council Joint Conference 1971, Preview.....My 74
American Electric Power System
Electric Power Budget (*NB*).....Ap 72
American Gear Manufacturers Association elects Richard H. Ewert president.....S 97
AGMA Standards as Engineering Tools for the Rating, Design, Production, and Inspection of Gearing [71-DE-14] (*A*).....Jl 46
American Institute of Aeronautics and Astronautics
ASME Joins AIAA in Workshops on Professional Employment Open to Engineers in all Disciplines.....Ja 109; F 96; Ap 83; My 114
ASME Employment Aids (*C*).....My 60
Technical Committee
Committee vice-chairman, George A. Brown, appointed director of committee's technologies panels on marine systems and technology Ap 86
United Attack Underway on Engineering Unemployment.....Jl 63
Employment Practices (*C*).....O 64
Workshop for Professional Employment at ASME-ASCE National Transportation Engineering Meeting in Seattle, Wash., 1971...Je 102; Jl 96
American Institute of Chemical Engineers
United Attack Underway on Engineering Unemployment.....Jl 63
Employment Practices (*C*).....O 64
American Institute of Industrial Engineers names Gordon B. Carson a Fellow; presents award for Outstanding Achievement in Management to Willard F. Rockwell, Jr. Jl 74
American Institute of Mining, Metallurgical, and Petroleum Engineers celebrates centennial at 100th annual meeting, 1971 My 75
American Iron and Steel Institute Design in Steel Award Contest 1970–1971.....My 85
American Management Association sessions on Minicomputer Ja 97; Consumer Movement at Briefing on "Product Liability and Consumerism" Je 57; Productivity Through Motivation.....Ap 80
Bomb Threats (*NB*).....Ap 72
American National Standards Institute
See also Codes and Standards
ANSI Committee N43: Meeting Jl 54; Withdraws Handbook 66 (Safe Design and Use of Industrial Beta-Ray Sources) as of March 9 S 85
ANSI Special Committee to Study Development of Optimum Metric Fastener System....O 71
1970 Standards Catalog Offered Free (*TL*)...Mr 77
1971 ANSI Standards Catalog (*TL*).....O 77
Plans for Restructure of ANSI Are Well Underway (*NR*).....D 64
Proposed: A17 Code Section for Lifts with Automatic Transfer Devices Ap 82; Revision to ANSI B31.3-1966 Petroleum Refinery Piping Code.....S 61
Standard B89.62: Temperature and Humidity Environments
Thermal Effects in Precision Machining [based on 70-WA/Prod-25].....Jl 11
Thermal Effects in Precision Machining [70-WA/Prod-25] (*A*).....Mr 62
American Nuclear Society elects: John W. Landis president and J. Ernest Wilkins treasurer O 89; George Kinsman to board of directors.....S 97
American Power Conference
See Meetings
American Society for Engineering Education presents: G. Edwin Burks Award to Edward F. Obert D 80; 44th Lamme Gold Medal Award to Richard G. Folsom.....O 89
Board of directors for 1971–1972 includes: Harold A. Bolz, George A. Hawkins, Merl Baker, Reginald I. Vachon, Lee Harrisberger, Mario J. Goglia.....N 89
Environmental Contest (*EN*).....Ja 64
American Society for Quality Control Silver Anniversary and Exhibit, 1971.....Ag 66
American Society for Testing and Materials presents: 1971 Max Hecht award to Fred Wilkes Ja 104; 1971 Walter C. Voss Award to Everett C. Shuman.....Ag 85
ASTM Widens Scope (*NB*).....Ja 62
American Society of Civil Engineers
United Attack Underway on Engineering Unemployment.....Jl 63
Employment Practices (*C*).....O 64
Workshop for Professional Employment at ASME-ASCE National Transportation Engineering Meeting in Seattle, Wash., 1971 Je 102; Jl 96
World Trade Center Wins Award as "Outstanding Civil Engineering Achievement for 1971" (*NB*) Je 59
American Society of Heating, Refrigerating and Air-Conditioning Engineers
International Heating and Air-Conditioning Exposition
20th, 1971
Review.....Ap 71
American Society of Mechanical Engineers
Agreement of Cooperation Reached Between Institute of Fuels of United Kingdom and ASME Ag 63
ASME: Direction for the Future (*Ed*).....My 15
ASME and Metric Conversion.....Ap 38
ASME Hospital Money Plan Benefits Increase Ja 97
ASME Joins AIAA in Workshops on Professional Employment Open to Engineers in All Disciplines.....Ja 109; F 96; Ap 83; My 114
ASME Employment Aids (*C*).....My 60
ASME Medal
See Honors
ASME News
See News
ASME-NSPE Agreement Operating at Top Speed ASME Members May Select Degrees of NSPE Participation (*NR*).....N 67
The Formal Education of Mechanical Engineers O 37

ASME (*Continued*)
NSPE and ASME Enter Agreement on Membership and Services ..... Jl 62
Unifying the Profession (*C*) ..... O 66
The Nuclear Survey Team and How It Works D 76

BOY SCOUT PROGRAM
Richmond Group, Dayton Section of ASME, conducts training program for Boy Scout Merit Badge in mechanical engineering ..... My 87

COMMITTEES
Ad Hoc Committee for Consulting Engineers
Consulting Engineering Problems Under Study My 83
Ad Hoc Metric Study Committee
Chairman during 1970 receives ASME Council certificate of award in recognition of faithful services as chairman ..... Jl 74
Agenda Committee, 1972
Call for National Agenda Items ..... Ag 82; S 90
Boiler and Pressure Vessel Committee
Committee elects, for 3-year terms, L. P. Zick as Chairman and W. L. Harding as Vice-Chairman S 98
Dual Presentation Marks J. M. Guy Retirement from ASME Boiler and Pressure Vessel Committee ..... D 77
Meeting in Miami, 1971
Preview ..... Ja 96; Ap 81
Gas Turbines
For Gas Turbines: New Standard Rating Point O 34
History and Heritage Committee
See also ASME National History and Heritage Committee
ASME Spearheads History and Heritage Program O 82
Committee Established 1970 ..... My 81
Mechanical Engineering Department Heads
The Formal Education of Mechanical Engineers O 37
Metric Study Special Committee
ASME and Metric Conversion ..... Ap 38
National History and Heritage Committee
Established late in 1970 to identify mechanical engineering attainments of the past by designating landmarks, sites, machinery, and other materials of historic interest, as well as such other tangibles suitable for the U. S. National Archives as drawings, old photographs, company records, and the recollections and reminiscences of engineers ..... Ap 85
National Nominating Committee
Nominations Wanted Now! ..... F 98
National Nominations for ASME Officers—Open Hearings, 1971 ..... Mr 78; Ap 82; My 83
Nuclear Power Piping Code Committee (B 31)
Proposed Addendum to B31.7-1969 Nuclear Power Piping Code ..... My 69
Performance Test Code Committee No. 1
General Instructions
1971 Addendum: Revised Paragraphs 1 and 2 D 59
Performance Test Code Committee PTC-2 on Definitions and Values
Report on Proposed Code of Definitions and Values [70-WA/PTC-2] (*A*) ..... My 52
Professional Practice Committee
Your Professional License—An Opportunity (*Ed*) O 19
Rolling Element Committee
Lubrication Division's Rolling Element Committee Updates Bearing Data ..... Jl 73
Survey Committee Report, 1969–1970
Progress in Railway Mechanical Engineering
Part I: Locomotives [70-WA/RR-9] (*A*) Je 41
Part II: Cars and Equipment [70-WA/RR-10] (*A*) ..... Je 41
Winter Annual Meeting, 1970 ..... Ja 90

CONSTITUTION, BY-LAWS AND RULES
ASME Constitution (*C*) ..... Ap 67

COUNCIL
Council Actions ..... F 99; S 94
Summary of Council Actions on 1970 NAC Recommendations ..... Ja 99
Executive Committee Actions ..... Ja 102; Ag 83; N 83
Council Appoints John A. Talbott Region IX Vice-President ..... D 79
Council Policy: Guide to Society Legislative Activities ..... Je 68
The Engineer: An Individual ... (*Ed*) ..... D 11
1970–1971 Report to Membership
The Engineer: An Individual ..... D 85

DIVISIONS
Aviation and Space
Division Design Award
See Honors
Design Engineering
Machine Design Award Nominations Sought D 75
Diesel and Gas Engine Power
Division Marks Golden Jubilee, 1971 ..... Jl 65
Gas Turbine
ASME Panel Examines Progress and Current Needs in Gas Turbine Codes and Standards Ap 77
Heat Transfer
Jakob (Max) Memorial Award
See Honors
Lubrication
Rolling Element Committee Updates Bearing Data Jl 73
Plant Engineering and Maintenance
Mackey (Guerard) Best Paper Award
See Honors
To Send Student Paper Winner to Conference Mr 80

EMPLOYMENT AIDS
ASME Employment Report: Activities in Easing the Engineer Job Pinch
ASME Sections Take Over Member Job Aid Ap 83
ASME Joins AIAA in Workshops on Professional Employment Open to Engineers in All Disciplines ..... Ja 109; F 96; Ap 83; My 114
ASME Employment Aids (*C*) ..... My 60
Jobs Open in Occupational Safety and Health Areas ..... S 90
No Job? ASME Offers Employment Workshops, Dues Moratorium, Continuation of Services, GRAD Program ..... Ja 109; My 102; Je 102; Jl 96
ASME Employment Aids (*C*) ..... My 60
Out of Work? VEST Offers Answers to Professionals ..... Jl 57
VEST Provides Quick Job Match ..... Ag 118; S 126; O 116; N 118; D 118
United Attack Underway on Engineering Unemployment ..... Jl 63
Employment Practices (*C*) ..... O 64
Workshop for Professional Employment at ASME-ASCE National Transportation Engineering Meeting in Seattle, Wash., 1971 ... Je 102; Jl 96

FREEMAN SCHOLAR PROGRAM
New ASME Freeman Scholars Selected; Reviews to Be Presented at WAM ..... Je 56

GOALS
ASME: Direction for the Future (*Ed*) ..... My 15
ASME Constitution (*C*) ..... Ap 67
ASME Goals—A Year Later (*Ed*) ..... Ap 15
Equal Opportunity (*C*) ..... Ap 67
Goals Comment (*C*) ..... Ja 56
Madison Engineering Council Operations in Full Swing ..... N 83
Professional Society (*C*) ..... F 77
Progress Report ..... Ja 92; Ag 72
21st Century? (*C*) ..... F 78
As the President Sees It
Rhodes
The ASME and Economic Security ..... Ja 108
Roe
The Modern Citizen Engineer ..... N 94
The Pursuit of Goal 1 ..... S 100
Support for the Goals ..... Ag 88
Basis for Action Programs
Making Technology a True Servant of Man Ap 16
Goal 1
The Pursuit of Goal One: An Appeal for Help S 87
Implementation ..... My 84; Ag 72
The Scoreboard ..... Ag 72
Working Parties ..... My 84
Working Parties ..... My 84
As the President Sees It
Support for the Goals ..... Ag 88

MEETINGS
Summer Annual
1971
Preview ..... My 82
Review ..... Ag 76
Winter Annual
91st, 1970
Review ..... Ja 68
Business Meeting ..... Ja 90
Committees in Charge ..... Ja 90
President's Luncheon Address
Evolution and Technology in Conflict Mr 18
Evolution and Technology (*C*) ... My 60; Je 51; Jl 52; Ag 56; O 64
92nd, 1971
Preview ..... S 88; O 69; N 74

MEMBERSHIP
Applications and Promotions ..... Ja 106; F 105; Mr 87; Ap 87; My 90; Je 79; Jl 77; Ag 86; S 98; O 90; N 92; D 82
Deceased ..... Ja 107; F 106; Mr 88; Ap 88; My 91; Je 80; Jl 78; Ag 87; S 99; O 91; N 92; D 83
Fellows Elected ..... F 102; Mr 85; Ap 86; My 89; Je 78; Jl 76; Ag 86; S 99; N 90; D 81
Honorary
See Honors
Professional Society (*C*) ..... F 77
21st Centufy? (*C*) ..... F 78

OFFICERS
Appointed
Council Appoints John A. Talbott Region IX Vice-President ..... D 79
Region IX Vice-President from June 1972 through June 1974 is John A. Talbott (*ECA*) ..... N 83
Elected
Election Returns for 1972–1974 ..... N 87
The President-Makers ..... N 87
1972–1973
President: Richard Gilman Folsom ..... N 84
1972–1974
Vice-Presidents
Regions
I: Robert E. Roberts ..... N 85
III: William A. Shearer, Jr. ..... N 85
V: Norman R. Johanson ..... N 85
VII: Robert W. Mills ..... N 85
IX: Richard Rosenberg ..... N 86
John A. Talbott (*ECA*) ..... N 83; D 79
XI: Charles T. Carley, Jr. ..... N 86
Policy Boards
Basic Engineering
Robert Plunkett ..... N 86
Codes and Standards
Arthur R. Machell, Jr. ..... N 86
Education
Donald N. Zwiep ..... N 86
Industry
J. Donald Paulus ..... N 87
Membership
Donald H. Cornell ..... N 87
Nominated
Officers 1972 ..... Ag 82
Nominations Open for 1973–1974 President and 1973–1975 Vice-Presidents ..... N 86

PERFORMANCE TEST CODES
See Codes and Standards

PERSONNEL
F. Wendell Beichley Joins ASME Staff; Becomes Director, Field Services for Regions VIII and IX F 96

POLICY BOARDS
Education
The Formal Education of Mechanical Engineers O 37
Professional Affairs
ASME Updates Legislative Policy (*Ed*) ..... Je 9

PRESIDENT
Luncheon Address at 1970 Winter Annual Meeting
Evolution and Technology in Conflict ... Mr 18
Evolution and Technology (*C*) ..... My 60; Je 51; Jl 52; Ag 56; O 64
As the President Sees It
Rhodes
The ASME and Economic Security ..... Ja 108
Publication: A User Viewpoint! A Value System? ..... My 92
Permanent Interest (*C*) ..... Ag 56
Publication of Papers (*C*) ..... Jl 51; O 65
Roe
Codes and Standards ..... D 84
Interfacing the Present with the Future ... O 92
The Modern Citizen Engineer ..... N 94
The Pursuit of Goal 1 ..... S 100
Support for the Goals ..... Ag 88

PUBLICATIONS
ASME publishes Supplement to APS-2: Guide for the Control of Emission of Oxides of Sulfur Combustion for Indirect Heat Exchangers N 83
Guide to Gas Piping Systems (*TL*)
"Guide for Gas Transmission and Distribution Piping Systems" ..... Ap 75
New ANSI B94 Standards (Die Buttons) Published by ASME ..... My 69
Publications Available (*TL*) ..... Mr 77; (*Er*) Ap 75; Jl 61; Ag 71; O 77
Mechanical Engineering
He Likes Us! (*C*) ..... Je 52
Technical Papers
New Price Structure ..... Jl 72
Transactions Journals
Journal of Applied Mechanics
Philip G. Hodge, Jr., becomes technical editor Jl 72
New Price Structure ..... Jl 72
Publication: A User Viewpoint! A Value System? My 92
Permanent Interest (*C*) ..... Ag 56
Publication of Papers (*C*) ..... Jl 51; O 65

REGIONS
Region II
Hudson Region II awards Meritorious Service Citation in recognition of outstanding service to ASME and membership of Region II to C. Melvin Purdy ..... D 80

ASME *REGIONS (Continued)*

REGION VI
PE & M Division to Send Student Paper Winner to Conference....Mr 80
REGION IX
Council Appoints John A. Talbott Region IX Vice-President....D 79
Region IX Vice-President from June 1972 through June 1974 is John A. Talbott (*ECA*)....N 83
REGIONS VIII AND IX
Beichley, F. Wendell, Joins ASME Staff; Becomes Director, Field Services, for Regions VIII and IX F 96
REGIONAL ADMINISTRATIVE CONFERENCES
The National Agenda System: Voice of the Membership....Ja 99
Region VII Meeting....Je 57

SECTIONS
ASME Sections Take Over Member Job Aid Ap 83
ASME Employment Aids (*C*)....My 60
Civic-Minded Engineers Start Pollution Solution Groups: ASME Sections, Subsections, and Groups Urged to Tackle Environmental Problems....Mr 78
BALTIMORE
Section Awards Savings Bonds to High School Essay Winners....My 85
BLUEGRASS
Section Receives Charter....Je 57
CENTRAL INDIANA
Section Sponsors "500 Race Meeting"....O 85
CLEVELAND
Section Sponsors All-Day Seminar on Gears My 83
DAYTON
Richmond Group conducts training program for Boy Scout Merit Badge in mechanical engineering....My 87
Section Holds Noise Pollution Seminar....F 97
HUDSON-MOHAWK
Section Holds Honors and Awards Dinner....S 91
LOS ANGELES
Conversion of a Queen....F 98
METROPOLITAN
Annual Spring Roundup
33rd, 1971
Preview....Ap 82
Review
Bill Byrne Feted; Outstanding Leadership Awards Presented....Jl 75
MID-JERSEY
Liability Prevention Annual Conference
2nd, 1971
Preview (*EN*)....Ap 73
Section Celebrates 50th Year....Jl 71
NORTH JERSEY
Liability Prevention Annual Conference
2nd, 1971
Preview (*EN*)....Ap 73
OAK RIDGE
New Section Formed in Tennessee....Ja 95
ORANGE COUNTY
Section in California Receives Certificate of Charter....F 98
PITTSBURGH
Section's Topic Is Fuel Availability—Coal..Ap 79
SOUTH TEXAS
Section Presents First Past-Chairman's Award to Its Woman's Auxiliary....Jl 74
WASHINGTON, D. C.
Section Presents Distinguished Service Award to John L. Bennett, Jr....Ag 85

STUDENT ACTIVITIES
PE & M Division to Send Student Paper Winner to Conference....Mr 80
Student Prizes (*EN*)....O 75
1971 ASME Regional Student Conference Reports....O 86
Other Prizes Presented at the Regional Student Conferences for 1971....O 86
SECTIONS
Christian Brothers College
Section in Memphis, Tenn., Receives Charter Je 57
Lamar University
Lamar State College of Technology Student Section Changes Name to Lamar University Student Section (*ECA*)....N 83
Southern University
Charter presented to Chapter....My 80

TECHNICAL DIGEST
See Literature

TECHNOLOGY EXECUTIVES CONFERENCE (TEC)
ASME: Direction for the Future (*Ed*)....My 15

WOMAN'S AUXILIARY
Scholarship Awards
1970–1971 Recipients....My 86
1971–1972 Awards Reported....O 84
South Texas Section presents First Past-Chairman's Award to Its Woman's Auxiliary....Jl 74
Winter Annual Meeting....Ja 91

American Welding Society
AWS to Move to Florida (*NB*)....Je 58

Amin, M.
Fatigue and Fracture Reliability Analysis of Pressure Vessels [71-PVP-47] (*A*)....S 48

Ammonia
Performance Map of a Heat Pipe (*NTB*)....Je 31

Amorosi, Alfred elected Fellow ASME...Je 78

Amos, Stephen E. deceased....Ja 107

Amplifiers
Flow and Performance Characteristics for Non-Vented Vortex Amplifiers [70-WA/Flcs-18] (*A*) Je 44
Flow and Pressure Recovery in Wall-Attachment Fluid Amplifiers [70-WA/Flcs-9] (*A*)....Je 43
A Note on the Defined Region Geometry for High-Gain Proportional Amplifiers [70-WA/Flcs-12] (*A*)....Je 44

Amplitude
Large Amplitude Vibration of a Circular Plate with Concentric Rigid Mass [71-APMW-11] (*A*) N 55
Relationship Among Frequency, Amplitude, Damping and Human Awareness for Floor Vibration Due to Impact [71-Vibr-44] (*A*) N 51

Amyot, J. W.
Measurement of Sequential Velocity Development in the Aorta [70-WA/BHF-13] (*A*)....Ap 63

Analysis Methods
Aircraft Gas Turbine Condition Analysis Instrumentation: Its Use for the Status Diagnosis of Naval Turbine Engines [71-GT-86] (*A*)....Jl 41
Analog and Digital Analysis and Synthesis of Oscillatory Tracks [71-Vibr-113] (*A*)....D 55
Analysis of Nonlinear Transient Motion of Cables Using Bond Graph Method [71-Vibr-21] (*A*) N 50
An Analytical Model Predicting Fixed Index Assembly Machine Performance [71-Vibr-63] (*A*) N 53
Analytical Solution to Steady-State Heat-Conduction Problems with Irregularly Shaped Boundaries [71-HT-P] (*A*)....N 59
Application of Ritz's Method to Thin Elastic Shell Analysis [71-APM-32] (*A*)....O 59
Automated Generation of Equations for Displacement Analysis of Spatial Mechanisms [70-Mech-43] (*A*)....Ja 50
Computer-Aided Methods to Relate Analytical and Graphical Design of Mechanisms [70-Mech-77] (*A*)....Ja 53
Computer Analysis of a Railroad Freight Car Bolster Utilizing the Finite Element Method [70-WA/RR-7] (*A*)....Je 42
Contact Ratio of Worm Gears [70-Mech-49] (*A*) Ja 51
A Direct Method for Analyzing Accelerations in Complex Mechanisms [71-APM-X] (*A*)....O 60
Dynamic Analysis of Mechanical Systems with Clearances
Part 1: Formation of Dynamic Model [70-Mech-64] (*A*)....Ja 52
Part 2: Dynamic Response [70-Mech-65] (*A*) Ja 52
Dynamic Analysis of Mechanisms Using Screw Coordinates [70-Mech-41] (*A*)....Ja 50
Dynamic Stability Analysis of Linkages with Elastic Members via Analog Simulation [70-Mech-48] (*A*)....Ja 51
Dynamic Tension Analysis of a Simple Lift System—A Computer Method [71-UnT-7] (*A*) D 47
Exact Analysis of a Thick Sandwich Conical Shell by Forward Integration [71-APMW-20] (*A*) N 56
Holographic Analysis of Turbine Blades [71-GT-84] (*A*)....Jl 41
Inertia Force Analysis of Spatial Mechanisms [70-Mech-5] (*A*)....Ja 46
An Iterative Method for Analyzing Oscillating Cam Follower Motion [70-Mech-23] (*A*)..Ja 48
Kinematic Analysis of Spatial Mechanisms by Means of Screw Coordinates
Part 1—Screw Coordinates [70-Mech-13] (*A*) Ja 47
Part 2—Analysis of Spatial Mechanisms [70-Mech-14] (*A*)....Ja 47
On Kinematic and Force Analysis of Peaucellier's Linkage [70-Mech-47] (*A*)....Ja 51
Kineto-Elastodynamic Harmonic Analysis of Four-Bar Path Generating Mechanisms [70-Mech-61] (*A*)....Ja 52
The Merit of Different Error Minimization Criteria in Approximate Analysis [71-APMW-8] (*A*) N 55
Methods of Modeling and Analyzing Viscoelastically Damped Structures [71-Vibr-36] (*A*)....N 51
A Momentum-Integral Analysis of the Three-Dimensional Turbine End-Wall Boundary Layer [71-GT-6] (*A*)....Ag 44
Noise Abatement in Industry
Interaction of Sound and Structures
Sound and Vibration Transmission Through Panel and Tie Beams Using Statistical Energy Analysis [70-WA/DE-2] (*A*) F 65, Ap 55
Nonlinear Analysis of Two-Dimensional Problems in Concrete Creep [71-APMW-25] (*A*)....N 57
Nonlinear Deflection Analysis for Coupled Tubular Structures [71-DE-F] (*A*)....Jl 48
The Octave Band Vibration Analyzer as a Machinery Defect Indicator [71-DE-47] (*A*)....Ag 47
Photoelasticity Applied to Analysis of Tubular Connections for Offshore Structures [71-Pet-27] (*A*)....D 50
The RSRC Mechanism—Kinematic Analysis and Synthesis of a Constrained Inversion [70-Mech-83] (*A*)....Ja 54
Semimembrane Analysis of Cylindrical Shells Subjected to Wind Loading [70-WA/APM-7] (*A*) My 57
Short Courses Offered on ELAS Program at Duke (*EN*)....D 69
Signature Analysis of Plant Equipment [71-Pet-14] (*A*)....D 48
Static Force and Torque Analysis Using 3 X 3 Screw Matrix, and Transmission Criteria for Space Mechanisms [70-Mech-18] (*A*)....Ja 47
Statistical Analysis of Adhesion Performance of Locomotives [70-WA/RR-8] (*A*)....Je 42
Stress Analysis of Thin Elasto-Plastic Shells [70-WA/PVP-3] (*A*)....F 76
Three-Dimensional Analysis of Hypoid Gears [71-DE-D] (*A*)....Jl 48
Tolerance Analysis of Mechanisms Using PA-300: A General Probabilistic Problem Solving Language [70-Mech-44] (*A*)....Ja 50
Transient Flexible-Rotor Dynamics Analysis
Part 1—Theory [71-Vibr-92] (*A*)....D 53
On the Use of the Undulating Elastica for the Analysis of Flexible Link Mechanisms [70-Mech-33] (*A*)....Ja 49

Anders, U. W. P.
The Dynamic Delivery Rate and the Hydraulic Similarity of Injection Pumps for High-Speed Engines [71-DGP-3] (*A*)....Ag 48

Anderson, Carl A., Jr. appointed sales manager for Rust Furnace Co., Div. of Litton Industries, Inc....F 101

Anderson, D. L. deceased....Ag 87

Anderson, G. M.
Timoshenko Beam Dynamics [71-APM-F] (*A*) O 60

Anderson, J. W. deceased....O 91

Anderson, S. A.
Surface Temperatures and Heat Fluxes Associated with the Evaporation of a Liquid Film on a Semi-Infinite Solid [71-HT-C] (*A*)....N 58

Anderson, W. J.
Flexible Rotor Balancing by the Exact Point-Speed Influence Coefficient Method [71-Vibr-91] (*A*) D 53

Anderton, D.
Noise Abatement in Industry
Engine Combustion and Noise
Origins of Reciprocating Engine Noise—Its Characteristics, Prediction, and Control (70-WA/DGP-3) (*A*)....Ap 58

Andreini, Joseph I. named vice-president of operations for Briggs Manufacturing Co., Sterling Heights, Mich., a division of Panacon Corp....Jl 74

Andrews, Raynal W., Jr. retires after 41 years with Aluminum Company of America...N 89

Anemometers
Calibration of Constant-Temperature Hot-Wire Anemometers at Low Velocities in Water with Variable Fluid Temperature [71-HT-9] (*A*) O 61

Ang, A. H.-S.
Fatigue and Fracture Reliability Analysis of Pressure Vessels [71-PVP-47] (*A*)....S 48

Angles
Evaluation of Angle to be Subtended by the Spiral of Semispiral Casings [70-WA/FE-18] (*A*)....F 74
Optimum Vane Number and Angle of Centrifugal Pumps with Logarithmic Vanes [70-WA/FE-20] (*A*)....F 74

Anisotropy
Anisotropy of Fatigue Crack Propagation [71-Met-G] (*A*)....Ag 48
Displacement and Plastic Distortion Fields Produced by Dislocations in Anisotropic Media [71-APM-17] (*A*)....S 56
Hemodynamic Flow in Anisotropic, Viscoelastic Thick-Wall Vessels [70-WA/APM-59] (*A*) Je 49

Annuli
A Numerical Solution for Natural Convection in Cylindrical Annuli [70-WA/HT-9] (*A*)...Ap 59
Antigens
Cryo-Immunology: The Antigenic Properties of the Male Rabbit Urogenital System as Studied by Selective Freezing of Its Components [70-WA/HT-19] (*A*).....Ap 60
Antonsen, Anker K. elected Fellow ASME N 90
Aorta
Measurement of Sequential Velocity Development in the Aorta [70-WA/BHF-13] (*A*).....Ap 63
Apartments
Apartment Air Conditioning (*NB*).....Ap 72
Apollo Program
See also Manned Space Station; Space Technology; Vehicles, Air and Aviation; Vehicles, Space
Spectral Emittance of Apollo 12 Lunar Fines [71-HT-21] (*A*).....O 62
Apperson, J. S. deceased.....Ag 87
Aprahamian, R.
Applications of Holography to Dynamics: High-Frequency Vibrations of Beams [70-WA/APM-5] (*A*).....My 57
Aqua-Chem Inc.
Cleaver-Brooks Div.
No Tuition Boiler Seminars (*EN*).....D 68
Aqueducts
Fresh Water to L. A. (*NB*).....Je 58
Aquifers
Thermal Prospecting (*BTR*).....F 53
Araki, Y.
Studies on the New Vibratory Powdering Machine [71-Vibr-26] (*A*).....N 50
Archaeology
"A Guide to the Industrial Archaeology of Europe" (*BR*).....N 62
Arches
Behavior of a Steep Prestressed Arch Made from a Buckled Strut [70-WA/APM-15] (*A*)....My 58
The Effect of Initial Imperfections on the Buckling Load of Shallow Circular Arches [71-AMPW-13] (*A*).....N 56
Large Sideward Deflections of Two-Hinged Circular Arches [71-DE-E] (*A*).....Jl 48
Arcs, Arcing
Engineering a Better Environment
2: High-Speed Interurban Transportation Systems
Fast Transit Link [based on 69-WA/PID-11] Fast Transit Link (*C*) (*D*) (*AC*).....Mr 66
Fracture Toughness of ASTM A533 Grade B Class 1 Heavy Section Submerged Arc Weldments [71-Met-B] (*A*).....Ag 48
Plasma Radiation Effects in Tube Arc Heating [71-HT-18] (*A*).....O 62
Torch Highlight (*PB*).....D 43
Wire Stripping via Electric Arc (*BTR*).....Ag 34
Arctic Environment
Arctic Pipeline (*BTR*).....O 47
Moving the Arctic Oil: Pipelines and the Pour Point.....N 27
Operation Arctic.....F 12
Operation Arctic (*C*).....Ap 68; S 60
Protecting the Permafrost (*BTR*).....S 42
The Use of Gas Turbines in Gas Pipeline Service in Western Canada—Present and Future [71-GT-37] (*A*).....Jl 38
Arctic Oil
See Offshore Technology
Argentina
Steel Mill Orders Boiler (*OS*).....Ag 42
Argon
Argon-Oxygen Process (*OS*).....My 50
Ariga, I.
On the Behavior of Uniform Shear Flow in Diffusers and Its Effects on Diffuser Performance [71-GT-5] (*A*).....Ag 44
Effects of Reynolds Number on Performance Characteristics of a Centrifugal Compressor [71-GT-25] (*A*).....Jl 36
Armstrong, R. C., III
A 1000-MWe LMFBR Steam Generator [71-NE-13] (*A*).....Jl 43
Arndt, R. E. A.
On the Measurement of Fluctuating Pressure in the Mixing Zone of a Round Jet [71-FE-31] (*A*) S 53
Arnold, R. C.
Stability of an Unsymmetrical Rotating Cantilever Shaft Carrying an Unsymmetrical Rotor [71-Vibr-58] (*A*).....N 53
Aronson, David
Combined Cycle (*C*).....N 61
Art
The Art of the Matter (*BTR*).....Ja 37
Arterburn, J. O.
SEFOR Operating Experience [71-NE-7] (*A*) Jl 43
Arteries
Large Deformation Analysis of the Arterial Cross Section [70-WA/BHF-15] (*A*).....Ap 63
Ash, E. B.
LMFBR Availability Considerations [71-NE-14] (*A*).....Jl 44
Ashby, William B. appointed president of American Meter Div., Singer Co., Philadelphia, Pa.....Je 77
Asociacion Mexicana de Ingenieros Mecanicos y Electricistas
AMIME confers honorary membership on James M. Guy.....Ja 104
Boiler and Pressure Vessel Committee
Second Annual Meeting, 1970
Review.....Ja 96
Third Annual Meeting, 1971
Review.....N 66
Dual Presentation Marks J. M. Guy Retirement from ASME Boiler and Pressure Vessel Committee.....D 77
Mexican Boiler Code Activities Expand Scope (*NR*) N 67
Asperity
A Thermal Elastohydrodynamic Theory for Individual Asperity-Asperity Collisions [70-Lub-25] (*A*).....Ja 45
Assessment
Assessment—By Whom, for Whom? [70-WA/AV-5] (*A*).....F 68
Association of Mechanical Engineers of Puerto Rico holds Silver Jubilee Week S 93
Association of Professional Materials Handling Consultants
Officers Elected
President is Walter F. Friedman.....Ap 85
Secretary is Irving Footlik.....Ap 85
Astronauts
See also Manned Space Station
Oxygen for Astronauts (*NB*).....O 73
Rover Trainer (*BTR*).....Ap 48
Astronomy
Life Clues in Interstellar Space (*BTR*).....O 43
Atesmen, K. M.
The Dispersion of Matter in Turbulent Pipe Flows [70-WA/FE-14] (*A*).....F 73
Atmosphere
Atmospheric Pollution Measurement (*NTB*) N 39
Coal Mining in an Oxygen-Free Atmosphere [70-WA/PID-4] (*A*).....Mr 63
Atomic Energy Commission
See United States
Atomic Research
Supermagnetic Performance (*BTR*).....O 48
Atomics International
Design of the Atomics International Fast Breeder Demonstration Plant [71-NE-16] (*A*).....Jl 44
LMFBR Availability Considerations [71-NE-14] (*A*).....Jl 44
Safety Criteria and Design for an FBR Demonstration Plant [71-NE-17] (*A*).....Jl 44
Sodium-Heated Modular Steam Generator Design and Development [71-NE-10] (*A*).....Jl 43
Auge, L. J.
Performance Changes of a Sodium-Heated Steam Generator [71-HT-15] (*A*).....O 62
August, S. E.
Heat Transfer Due to Combined Free and Forced Convection in a Horizontal and Isothermal Tube [71-HT-3] (*A*).....O 61
Aul, E. L.
Resistance of Some Standard Compressor Materials to Hydrogen Sulfide Stress-Corrosion Cracking [71-Pet-25] (*A*).....D 50
Ault, E. Stanley receives ASME 50-Year Membership Pin.....O 85
Auslander, David M.
Operation Arctic (*C*).....Ap 68
Parameter Tuning of Linear DDC Algorithms [70-WA/Aut-16] (*A*).....F 70
Austin, C.
Design and Development of a 12,500-hp Gas Turbine [71-GT-19] (*A*).....Jl 36
Austin, H. R. deceased.....D 83
Automatic Control
See also Control Systems; Systems
Approximate Nonlinear Filters and Deterministic Filter Gains [70-WA/Aut-9] (*A*).....F 70
Automatic Fare Paying (*OS*).....O 52
Container Control System (*NB*).....O 73
A Directed Random Search [70-WA/Aut-7] (*A*) F 69
Some Further Contributions to the Dynamic Sensitivity of the Parameter Perturbation Process [70-WA/Aut-5] (*A*).....F 69
Gas Flow Control Employing Temperature and Pressure Compensation [70-WA/Aut-14] (*A*) F 70
Parameter Tuning of Linear DDC Algorithms [70-WA/Aut-16] (*A*).....F 70
Synthesis by Liapunov's Direct Method [70-WA/Aut-3] (*A*).....F 69
Theoretical and Experimental Optimization of a High-Speed Rotor [70-WA/Aut-11] (*A*)....F 70
Thermal Control Optimization for Cylindrical Spacecraft [70-WA/Aut-13] (*A*).....F 70
The Wave Reflection Matrix in Beam Vibration Control [70-WA/Aut-1] (*A*).....F 69
Automation
Analog and Digital Analysis and Synthesis of Oscillatory Tracks [71-Vibr-113] (*A*).....D 55
An Analytical Model Predicting Fixed Index Assembly Machine Performance [71-Vibr-63] (*A*) N 53
Application of Optimal Control Theory to Some Structural Optimization Problems [71-Vibr-66] (*A*).....N 53
An Automated Method for Evaluating Truck Design [71-Vibr-112] (*A*).....D 55
Automatic Checkout of Complex Modules [71-Vibr-115] (*A*).....D 55
The Autotape/Autocheck System [71-Vibr-61] (*A*) N 53
Calculation of Tolerance Based on a Minimum Cost Approach [71-Vibr-114] (*A*).....D 55
Computer-Aided Study of Journal Bearing Performance Under Cyclic Loads:
Part I—Theory [71-Vibr-86] (*A*).....N 54
Part II—Applications [71-Vibr-87 (*A*).....N 54
Design and Optimization of Direct-Current Machines [71-Vibr-85] (*A*).....N 53
Dual Formulation of Variational Problems in Optimal Design [71-Vibr-110] (*A*).....D 54
Graphically Accessed Design System That Can Employ Existing Algorithms [71-Vibr-70] (*A*) N 54
IMP (Integrated Mechanisms Program), A Computer-Aided Design Analysis System for Mechanisms and Linkage [71-Vibr-80] (*A*) D 52
Introduction to Data Base Design [71-Vibr-67] (*A*) N 53
Optimal Trajectories and Controls for Systems of Coupled Rigid Bodies [71-Vibr-82] (*A*)....D 52
Optimum Allocation of Two-Dimensional Shapes [71-Vibr-68] (*A*).....N 54
Optimum Design of a Four-Bar Linkage Whose Coupler Path Has Specified Extremes [71-Vibr-109] (*A*).....D 54
Optimum Design of a Linear Multi-Degree-of-Freedom Shock Isolation System [71-Vibr-31] (*A*).....D 52
Robot Forges Ahead (*BTR*).....Je 35
Simulation of the Dynamics of Machinery [71-Vibr-111] (*A*).....D 55
A Survey of Optimization of Mechanical Design [71-Vibr-62] (*A*).....N 53
Some Tentative Weibullian Descriptions of the Properties of Steels, Aluminums, and Titaniums [71-Vibr-64] (*A*).....N 53
Use of Optimization Techniques in Identifying a Shock Absorber: An Elementary Experience in Design Education [71-Vibr-69] (*A*).....N 53
Automobiles
See Vehicles, Electric; Vehicles, Motor
Automobiles, Abandoned
See Vehicles, Motor
Automotive Engineering
See also Vehicles, Motor
All-Aluminum Engine Block (*BTR*).....F 59
Automobile Bumper Testing with the Liberty Mutual Crash Simulator [71-Vibr-107] (*A*)..D 54
The Electric Car—Solution to Pollution? (*BTR*) Je 32
The Gas Turbine (*C*).....Ag 56
Engineering a Better Environment
8: Auto Pollution Solution: The Gas Turbine? [based on 70-WA/GT-8].....Je 25
The Gas Turbine (*C*).....Ag 56; S 59
The Potential of the Gas-Turbine Vehicle in Alleviating Air Pollution [70-WA/GT-8] (*A*).....My 56
High Diver Impacts on GM (*BTR*).....Ap 43
Hydrogen-Fueled IC Engine (*BTR*).....N 40
Prediction of Performance of Radial Gas Turbines in Automotive Turbochargers [71-GT-66] (*A*) Jl 40
Reduced Pollution Power Systems (*NB*).....N 68
Seat Belts and Safety (*BTR*).....D 37
The Super Adhesive (*BTR*).....F 57
To End Auto Pollution (*NB*).....Mr 72
Wide Open Engine (*PB*).....Ap 50
Automotive Industry
ASME Panel Examines Progress and Current Needs in Gas Turbine Codes and Standards Ap 77
Fuel Additives (*NB*).....Je 58
Motor Vehicle Emissions Committee (*NB*)...D 66
Ultrasonic Inspection of Cold Forgings (*BTR*) S 39
Availability
Evolution of LMFBR Plant Design for Reliability

Availability (*Continued*)
and Availability [71-NE-3] (*A*).....J1 42
LMFBR Availability Considerations [71-NE-14] (*A*).....J1 44
Aviation and Space
See also Manned Space Station; Professionalism; Public Safety; Society; Space Technology; Technology
Airport Traffic Pattern (*NB*).....N 69
Concorde Success (*OS*).....N 45
A Criterion for the Combustion Modes in Constant Area Combustors [70-WA/Av-4] (*A*).....F 68
The Laser in Aerospace (*BTR*).....My 43
Roof-Top Heliport (*PB*).....D 42
To Reduce Midair Collisions (*NB*).....N 68
Avitzur, B.
Hydrodynamic Lubrication in Rolling of Thin Strips [71-Prod-2] (*A*).....J1 48
Axles
Factors Affecting Axle Stresses [70-WA/RR-6] (*A*) Je 42
Ayotte, W. J.
Computer Simulation of the Environmental/Thermal Control and Life-Support System for the Space Station Prototype [71-Av-34] (*A*) O 58
Ayre, R. S.
Nonlinear Dynamic Response of Elastic Slider-Crank Mechanism [70-Mech-39] (*A*).....Ja 50
Optimum Damping and Stiffness in a Nonlinear Four-Degree-of-Freedom System Subject to Shock Load [70-WA/APM-18] (*A*).....My 58
Ayyaswamy, P.
Predictions of Momentum Transfer Between Rotating Cylinders: The Narrow Gap Problem [71-APM-30] (*A*).....O 58

B

Baade, Peter K. internationally recognized authority on acoustics, appointed non-resident visiting professor at Purdue University..D 80
Baan, George B. appointed vice chairman of Handy Associates.....My 88
Back, L. H.
Turbulent Boundary Layer and Heat Transfer Measurements Along a Convergent-Divergent Nozzle [71-HT-4] (*A*).....O 61
Bader, D. M.
Programmed Preventive Maintenance—Its Application to Oil Field Operation [71-Pet-10] (*A*) D 48
Badgley, R. H.
Flexible Rotor Balancing by the Exact Point-Speed Influence Coefficient Method [71-Vibr-91] (*A*) D 53
Noise Abatement in Industry
Engine Combustion and Noise
Mechanical Aspects of Gear-Induced Noise in Complete Power Train Systems [70-WA/DGP-1] (*A*).....Ap 57
Bagci, Cemil
Degrees of Freedom of Motion in Mechanisms [70-Mech-26] (*A*).....Ja 48
Minimum Error Synthesis of Space Mechanisms for the Generation of Constrained and Unconstrained Screws [70-Mech-27] (*A*).....Ja 48
The RSRC Mechanism—Kinematic Analysis and Synthesis of a Constrained Inversion [70-Mech-83] (*A*).....Ja 54
Static Force and Torque Analysis Using 3 X 3 Screw Matrix, and Transmission Criteria for Space Mechanisms [70-Mech-18] (*A*).....Ja 47
Bailey, J. R.
Radiation and Response of Cylindrical Beams Excited by Sound [71-Vibr-84] (*A*).....D 52
Bailey Meter Co.
Joint Venture Formed (*NB*).....Je 59
Baker, Barry T. wins ASME 10th annual (1970–1971) Design Problem Contest.....S 91
Baker, D. R.
Developing Cooling Tower Recirculation Factors from Field Test Data [70-WA/HT-22] (*A*) Ap 60
Baker, M.
Application of a Gas Turbine to Compressed Air Supply Requirements [71-GT-48] (*A*).....Ag 46
Baker, Merl chairman of projects board on American Society for Engineering Education 1971–1972 board of directors.....N 89
Baker, P. H.
ASME Survey Committee Report, 1969–1970
Progress in Railway Mechanical Engineering
Part I: Locomotives [70-WA/RR-9] (*A*) Je 41
Baker R. E. deceased.....D 83
Baker, R. L.
The Mixing of Two Parallel Streams of Dissimilar Fluids
Part 1: Analytical Development [70-WA/APM-37] (*A*).....Je 47
(Turbulent Mixing of Two Parallel Streams)
Part 2: An Experimental Investigation [70-WA/APM-38] (*A*).....Je 47
Baker, Wilfred E. elected Fellow ASME Ag 86
Bakesef, S. deceased.....D 83
Balachandran, K.
Analysis and Physiological Monitoring of the Human Left Ventricle [70-WA/BHF-14] (*A*) Ap 63
Balakrishnan, A.
Volume Interchange Factors for Nonhomogeneous Gases [71-HT-19] (*A*).....O 62
Balancing
Analysis and Experiments on Multi-Plane Balancing of a Flexible Rotor [71-Vibr-74] (*A*)...D 52
Determination of Force-Balanced Four-Bar Linkages with Optimum Shaking Moment Characteristics [70-Mech-8] (*A*).....Ja 46
Flexible Rotor Balancing by the Exact Point-Speed Influence Coefficient Method [71-Vibr-91] (*A*).....D 53
Multiplane Balancing of Flexible Rotors—A Method of Calculating Correction Weights [71-Vibr-52] (*A*).....N 52
Optimal Torque Balance for a Complex Stamping and Indexing Machine [70-Mech-82] (*A*) Ja 54
Should a Flexible Rotor Be Balanced in N or (N + 2) Planes? [71-Vibr-55] (*A*).....N 53
Theory of Shaking Moment Optimization of Force-Balanced Four-Bar Linkages [70-Mech-12] (*A*).....Ja 47
Unbalance Response of an Elastic Rotor in Damped Flexible Bearings at Supercritical Speeds [70-WA/Pwr-3] (*A*).....My 55
On the Use of Balancing Machines for Flexible Rotors [71-Vibr-73] (*A*).....N 54
Using the Orbit to Balance Rotating Equipment [based on 70-Pet-30].....F 28
Baldwin, Howard A. receives Distinguished Fellow Award.....Ja 104
Baldwin, L. V.
The Dispersion of Matter in Turbulent Pipe Flows [70-WA/FE-14] (*A*).....F 73
Bale, Y. S.
A New Method for the Calculations of Blade Loadings in a Radial Flow Compressor [71-GT-60] (*A*).....J1 39
Balent, R.
Design of the Atomics International Fast Breeder Demonstration Plant [71-NE-16] (*A*).....J1 44
Baltimore & Ohio Railroad
Curtis Bay's New Ship-Barge Loader [70-WA/MH-4] (*A*).....My 54
Bammert, K.
Dynamic Behavior and Control of Single-Shaft Closed-Cycle Gas Turbines [71-GT-16] (*A*) Ag 45
Results of Experiments for Determining the Influence of Blade Profile Changes and Manufacturing Tolerances on the Efficiency, the Enthalpy Drop, and the Mass Flow of Multi-Stage Axial Turbines [70-WA/GT-4] (*A*) My 56
Baness, Leonard S. elected president and chief executive officer of Wire Sales Co., Chicago, Ill. N 89; and a director.....D 80
Bang-Bang
Optimal Bang-Bang Control for a Class of Distributed Parameter Systems [70-WA/Aut-15] (*A*) F 70
Bankert, Jon C., Jr. promoted to head of Millimeter Wave Installation Engineering Dept. at Bell Laboratories, Union, N. J. O 90
Baranyi, S. J.
Multiple-Harmonic Cam Profiles [70-Mech-59] (*A*) Ja 51
Barash, M. M.
Automatic Planning of Optimal Metal-Cutting Operations and Its Effect on Machine-Tool Design [70-WA/Prod-14] (*A*).....Mr 60
Barges
Curtis Bay's New Ship-Barge Loader [70-WA/MH-4] (*A*).....My 54
Bargetz, Edward J. appointed manager of plant engineering for Firestone Tire & Rubber Co. S 97
Barinka, L. L.
Nonlinear Deflection Analysis for Coupled Tubular Structures [71-DE-F] (*A*).....J1 48
Barkan, P.
On a Model of a Pneumatically Actuated Mechanical System [70-Mech-34] (*A*).....Ja 49
Barker, R. S.
Computer Simulation of the Environmental/Thermal Control and Life-Support System for the Space Station Prototype [71-Av-34] (*A*) O 58
Barkovitz, William E. appointed manager, Power Systems, in new Air Pollution Control Department of American-Standard.....F 101
Barnes, Dana H., Jr. elected Fellow ASME My 89
Barnes, L. T. deceased.....D 83
Barnum, T. B.
A Theoretical Study of the Dynamic Behavior of Foil Bearings [70-Lub-5] (*A*).....Ja 42
Baron, A.
Prediction of the Thermal Conductivity Anomaly of Simple Substances in the Critical Region [71-HT-28] (*A*).....O 63
Baron, M. L.
Buckling of Vessels Composed of Combinations of Cylindrical and Spherical Shells [70-WA/APM-19] (*A*).....My 58
Barr, A. D. S.
The Autoparametric Vibration Absorber [71-Vibr-49] (*A*).....N 52
Barr, L. G.
Life-Support System Operational and Maintenance Data for the 90-Day Space Station Simulator Test [71-Av-3] (*A*).....O 55
Barrangon, Maurice
Employment Help Wanted (*C*).....F 77
Barratt, R.
Selection of the Steam Generator for the Proposed 350-MW(e) Demonstration Plant [71-NE-5] (*A*) J1 42
Barrett, Richard E. receives Pi Tau Sigma Gold Medal at 1970 WAM.....Ja 74, 75
Barricades
The Dynamic Response of Blast Shields and Barricades to Impulsive Loadings [71-PVP-48] (*A*) S 48
Barrie, John G. elected Fellow ASME J1 76; receives certificate.....D 81
Barrier, John J. deceased.....F 106
Barron, J. T. deceased.....D 83
Barron, R. L.
Applications of Self-Organising and Learning Control to Aeronautical and Industrial Systems [71-DE-22] (*A*).....J1 46
Barrow, R. B.
Electrochemical Grinding of Cylindrical Test Specimens [71-Prod-11] (*A*).....J1 49
Barrows, Walter I. deceased.....My 91
Bars
Calculating the Response of a Four-Bar Linkage [70-Mech-69] (*A*).....Ja 52
Determination of Force-Balanced Four-Bar Linkages with Optimum Shaking Moment Characteristics [70-Mech-8] (*A*).....Ja 46
An Experimental and Numerical Study of Elastic Strain Waves on the Center Line of a 6061-T6 Aluminum Bar [71-APMW-22] (*A*).....N 57
Kinematic Synthesis of a Geared Five-Bar Function Generator [70-Mech-2] (*A*).....Ja 45
Multiply Separated Position Design of the Geared Five-Bar Function Generator [70-Mech-16] (*A*) Ja 47
A Relaxation and Gradient Combination Applied to the Computer Simulation of a Plane Four-Bar Chain [70-Mech-20] (*A*).....Ja 48
Six-Bar Cognates of Watt's Form [70-Mech-30] (*A*) Ja 49
Synthesis of a Geared N-Bar Linkage [70-Mech-24] (*A*).....Ja 48
Theory of Shaking Moment Optimization of Force-Balanced Four-Bar Linkages [70-Mech-12] (*A*).....Ja 47
Variational Equation of Motion for Coupled Flexure and Torsion of Bars of Thin-Walled Open Section Including Thermal Effect [70-WA/APM-51] (*A*).....Je 48
Barsom, J. M.
Fatigue-Crack Propagation in Steels of Various Yield Strengths [71-PVP-12] (*A*).....Ag 51
Relationship Between Plane-Strain Ductility and K_{1c} for Various Steels [71-PVP-13] (*A*)...Ag 51
BART (Bay Area Rapid Transit)
$40 Million for S. F. Rapid Transit (*NB*)....Je 59
Barta, M. L.
Gas Piping Design for High Speed Reciprocating Compressor Units [71-Pet-3] (*A*).....D 47
Bartel, D. L.
An Automated Method for Evaluating Truck Design [71-Vibr-112] (*A*).....D 55
The Optimum Design of Spatial Frames Using the Method of Constrained Steepest Descent with State Equations [71-DE-H] (*A*).....J1 48
Time Domain Optimization of a Vibration Absorber [70-WA/DE-5] (*A*).....F 66
Bartels, John P. appointed vice-president and general manager of Pfizer Minerals, Pigments and Metals Division of Pfizer Inc.....Ja 104
Bartlett, J. L. deceased.....D 83
Bartolero, C. deceased.....N 92
Basiulis, A.
Characteristics of Six Novel Heat Pipes for Thermal Control Applications [71-Av-29] (*A*).....O 57

Baskin, K. P.
In-Service Inspection of San Onofre Nuclear Generating Station—Unit 1 [71-PVP-51] (*A*) S 48

Bass, R. L.
Bellows Vibration with Internal Cryogenic Fluid Flows [71-Vibr-14] (*A*) N 49

Bass, T. P.
Gas Piping Design for High Speed Reciprocating Compressor Units [71-Pet-3] (*A*) D 47

Bates, H. C. deceased Je 80

Bates, R. C.
Analysis of Cracks in Welded Elbows [71-PVP-32] (*A*) Ag 53

Bathish, G. N.
Free Vibrational Characteristics of Pretensioned Cable Roofs [71-Vibr-4] (*A*) N 48

Battacharya, M. C.
Noise Abatement in Industry
Interaction of Sound and Structures
Sound and Vibration Transmission Through Panels and Tie Beams Using Statistical Energy Analysis [70-WA/DE-2] (*A*) F 65, Ap 55

Batteries
Electric Auto Battery (*OS*) F 63
Electric Storage Batteries for Vehicle Propulsion [70-WA/Ener-7] (*A*) Ap 62
New Zinc-Air Battery (*OS*) D 44

Bauld, N. R., Jr.
Buckling and Postbuckling Behavior of Clamped Shallow Spherical Shells Under Axisymmetric Ring Loads [71-APM-9] (*A*) S 56

Baumann, H. D.
On the Prediction of Aerodynamically Created Sound Pressure Level of Control Valves [70-WA/FE-28] (*A*) F 74

Baumgarten, J. R.
Application of Gradient Search Procedures for the Identification of Unknown System Parameters from System Response Observations [71-Vibr-50] (*A*) N 52
Use of Optimization Techniques in Identifying a Shock Absorber: An Elementary Experience in Design Education [71-Vibr-69] (*A*) N 53

Bauschinger Effect
Yield Criteria and the Bauschinger Effect for a Plastic Solid [71-Met-P] (*A*) S 55

Bauxite
Overland Belt Conveying of Jamaican Bauxite [70-WA/MH-5] (*A*) My 53

Baw, P. S. H.
Some Aspects of Gas-Solid Suspension Turbulence [71-FE-15] (*A*) Ag 55

Bay Area Rapid Transit
See BART

Bayazitoglu, Y. O.
Development and Application of a Generalized d'Alembert Force for Multifreedom Mechanical Systems [70-Mech-25] (*A*) Ja 48

Bayer, R. G.
Designing for Wear Characteristics of Members in Sliding Mechanisms [71-DE-39] (*A*) Ag 46

Bayles, Allison L. appointed to board of directors of Archdomes, Inc. N 89

Bazergui, A.
Cumulative Fatigue Damage Under Stress-Controlled Conditions [71-Met-M] (*A*) S 54

Beall, S. E., Jr.
Engineering a Better Environment
9: Waste Heat Uses Cut Thermal Pollution [based on 70-WA/Ener-6] Jl 15
Waste Heat Uses (*C*) (*AC*) O 66
Uses of Waste Heat [70-WA/Ener-6] (*A*) Ap 61

Beams
See also Timoshenko Beams
Applications of Holography to Dynamics: High-Frequency Vibrations of Beams [70-WA/APM-5] (*A*) My 57
On the Contact Problem of a Rigid Punch Pressed on a Viscoelastic Beam [71-APMW-18] (*A*) N 56
Depth of Penetration During Electron Beam Welding [70-WA/HT-2] (*A*) Ap 58
Dynamic Stability of a Beam Carrying Moving Masses [71-APM-M] (*A*) O 59
The Effects of Shear Deformation and Rotary Inertia on the Lateral Frequencies of Cantilever Beams in Bending [71-Vibr-79] (*A*) D 52
Forced Vibration of a Beam with Time-Dependent Boundary Condition [71-Vibr-32] (*A*) N 50
A Generalized Formulation of the Vectorial Equations of Motion for Nonprismatic Thin Space Beams [71-APM-P] (*A*) O 59
Microstructure Theory for a Composite Beam [71-APM-S] (*A*) O 59
Nonlinear Vibrations of a Beam Under Harmonic Excitation [70-WA/APM-13] (*A*) My 58
Nonlinear Vibrations of a Buckled Beam Under Harmonic Excitation [70-WA/APM-48] (*A*) Je 48
On the Nonlinear Vibrations of Free-Free Beams [70-WA/APM-55] (*A*) Je 49
Normal Impact of an Infinite Elastic Beam by a Semi-Infinite Elastic Rod [70-WA/APM-54] (*A*) Je 48
Radiation and Response of Cylindrical Beams Excited by Sound [71-Vibr-84] (*A*) D 52
Resonance Response Criteria of a Damped Three-Layered Beam [71-Vibr-102] (*A*) D 54
The Wave Reflection Matrix in Beam Vibration Control [70-WA/Aut-1] (*A*) F 69

Bean, H. S.
Formulation of Equations for Orifice Coefficients [70-WA/FM-2] (*A*) Ap 64

Beanfield, R. McC. deceased Ag 87

Beard, J. T.
An Interferometric Technique for Temperature and Concentration Measurement for an Air-Water Interface [70-WA/Temp-1] (*A*) My 54

Bearings
Advanced Design Concepts for High Speed Bearings [71-DE-50] (*A*) Ag 47
Air Bearings for High-Speed Mirrors Rotating in a Vacuum [70-Lub-15] (*A*) Ja 43
An Analysis of Forces at the Pivot Bearing of a Compound Pendulum [71-APM-H] (*A*) O 60
Application of Air Bearings and Laser Interferometry to an Inspection Machine [70-WA/Prod-29] (*A*) Mr 63
Ball Bearings: Cost vs. Value [based on 70-DE-48] Mr 20
Bearing Up with the 747 (*BTR*) Ja 32
Computer-Aided Study of Journal Bearing Performance Under Cyclic Loads:
Part I—Theory [71-Vibr-86] (*A*) N 54
Part II—Applications [71-Vibr-87] (*A*) N 54
"Drilled Ball" Bearings (*NTB*) F 51
Dry-Bearing Laminate (*OS*) F 62
The Effects of Temperature and Inertia on Hydrostatic Thrust Bearing Performance [70-Lub-10] (*A*) Ja 43
The Hydrodynamic Lubrication of Rough Bearing Surfaces of Finite Width [70-Lub-7] (*A*) Ja 42
The Influence of EHD Lubrication on Rolling Bearing Selection and Design [71-DE-3] (*A*) Jl 44
The Influence of Wall Conductance on Performance of the MHD Hydrostatic Thrust Bearing [70-Lub-1] (*A*) Ja 42
Investigation of the Spherical Hydrostatic Gas Bearing for Two-Axis Gyros [70-Lub-6] (*A*) Ja 42
Measurement of the Dynamic Characteristics of a Large Sleeve Bearing [70-Lub-14] (*A*) Ja 44
Minimum Squeeze Film Thickness in a Periodically Loaded Journal Bearing [70-Lub-12] (*A*) Ja 43
A Numerical Method and Higher Approximations for a Self-Acting, Gas-Lubricated Bearing of Finite Length [70-Lub-23] (*A*) Ja 45
Optical Analysis of Ball Bearing Starvation [70-Lub-19] (*A*) Ja 44
A Qualitative Study of Gas Bearings Operating at High Subsonic and Supersonic Tangential Speeds [71-APM-U] (*A*) O 59
Squeeze Film Bearing for the Elimination of Oil Whip [70-Lub-8] (*A*) Ja 42
Stability and Transient Motion of a Vertical Three-Lobe Bearing System [71-Vibr-76] (*A*) D 52
A Theoretical Investigation of Compliant Surface Journal Bearings [70-Lub-20] (*A*) Ja 44
A Theoretical Study of the Dynamic Behavior of Foil Bearings [70-Lub-5] (*A*) Ja 42
Thrust Bearings for Power Gas Turbines [71-GT-59] (*A*) Jl 39
Unbalance Response of an Elastic Rotor in Damped Flexible Bearings at Supercritical Speeds [70-WA/Pwr-3] (*A*) My 55
The Wingless Turbojet (*BTR*) Ap 45

Beattie, Horace Smart, Jr. to receive ASME Medal at 1971 Winter Annual Meeting S 89

Beavers, G. S.
Low Reynolds Number Turbulent Flow in Large Aspect Ratio Rectangular Ducts [71-FE-A] (*A*) S 53

Beckemeyer, R. J.
The Free Vibrations of a Spinning Centrally Clamped Shallow Spherical Shell [71-APM-G] (*A*) O 60

Becker, P. M.
Flames, Ions, and Electric Fields [70-WA/Fu-4] (*A*) F 75

Beckett, E. F.
Response of a Piped LMFBR to Primary System Pipe Rupture [71-NE-1] (*A*) Jl 42

Beckman, W. A.
Performance of Air-Cooled Radiatively Heated Screen Matrices [70-WA/Sol-1] (*A*) F 64

Bedford, A.
A Continuum Theory of Fluid Saturated Porous Media [70-WA/APM-36] (*A*) Je 47
Wave Propagation in Viscoelastic Laminates [70-WA/APM-40] (*A*) Je 47

Bednarski, S.
Gas-Turbine Loading Schedule for Maximum Life of the Hot Gas Path Components [70-WA/GT-2] (*A*) My 56

Beeley, R. J.
Safety Criteria and Design for an FBR Demonstration Plant [71-NE-17] (*A*) Jl 44

Beer, Ferdinand P. named recipient of R. R. and E. C. Hillman Award given to the Lehigh University faculty member who has done the most toward advancing the interests of the university S 98

Beetle, D. H., Jr.
Control of Machines by Conversational Speech [71-DE-7] (*A*) Jl 45

Begeman, Myron L. deceased Mr 88

Beichley, F. Wendell joins ASME staff as Director of Field Services for Regions VIII and IX F 96

Bejczy, A. K.
Approximate Nonlinear Filters and Deterministic Filter Gains [70-WA/Aut-9] (*A*) F 70

Beknev, V. S.
Generalization of Experimental Data for Compressor Cascades at Low Speeds [70-WA/GT-10] (*A*) My 57

Belinkine, J. deceased Ag 87

Bellows
Bellows Vibration with Internal Cryogenic Fluid Flows [71-Vibr-14] (*A*) N 49
Flexible Protection for Metal Bellows (*NTB*) Ag 36
Vortex Excitation of Metal Bellows [71-Vibr-22] (*A*) N 50

Belts
High-Capacity Belt Conveyor Systems for Handling Bulk Material [70-WA/MH-1] (*A*) My 53
Overland Belt Conveying of Jamaican Bauxite [70-WA/MH-5] (*A*) My 53
Vibration and Dynamic Stability of an Axially Moving Belt [71-Vibr-31] (*A*) N 50

Belz, Paul D. elected Fellow ASME F 102

Bend, Bending
Bending of Cylindrical Shells by Initial Parameter Method [70-WA/PVP-2] (*A*) F 75
The Coupled Bending-Bending Vibration of Pre-Twisted Tapered Blading [71-Vibr-78] (*A*) D 52
The Effects of Shear Deformation and Rotary Inertia on the Lateral Frequencies of Cantilever Beams in Bending [71-Vibr-79] (*A*) D 52
Phase Transformation Effects on the Bending Stress Distributions in Carburized Steel Components [71-Met-H] (*A*) S 54
Pure Bending, Stretching, and Twisting of Anisotropic Cylindrical Shells [71-APMW-4] (*A*) N 55
The Separation of Membrane and Bending Shears in Shell with Two Birefringement Coatings [70-WA/APM-28] (*A*) Je 46
Two-Dimensional Miter-Bend Flow [70-WA/FE-1] (*A*) F 71

Bendelius, Arthur G. named one of 11 new associates of Parsons, Brinckerhoff, Quade & Douglas Ap 85

Benedict, A. G.
Underground Tunnels (*C*) N 62

Benedict, C. E.
Optimal Torque Balance for a Complex Stamping and Indexing Machine [70-Mech-82] (*A*) Ja 54

Benedict, R. P.
Generalized Contraction Coefficient of an Orifice for Subsonic and Supercritical Flows [70-WA/FM-1] (*A*) Ap 64
Generalized Expansion Factor of an Orifice for Subsonic and Supercritical Flows [70-WA/FM-3] (*A*) Ap 64

Benjamin, M. K.
A Theoretical Investigation of Compliant Surface Journal Bearings [70-Lub-20] (*A*) Ja 44

Bennett, H. G. deceased D 83

Bennett, John L., Jr. receives distinguished service award of ASME Washington, D. C., Section Ag 85

Bennett, Robert A. receives Outstanding Leadership Award from Metropolitan Section of ASME Jl 75

Benson, Arthur E. deceased Ja 107

Benson, R. S.
Analytical and Experimental Studies of Two-Dimensional Flows in a Radial Bladed Impeller [71-GT-20] (*A*) Jl 36
Prediction of Performance of Radial Gas Turbines in Automotive Turbochargers [71-GT-66] (*A*) Jl 40

Benson-Wallace Method
See also Prediction Methods
Prediction of Performance of Radial Gas Turbines in Automotive Turbochargers [71-GT-66] (*A*) Jl 40

Benton, W. F.
Gas-Cooled Fast Reactor Refueling System [71-NE-8] (*A*) ..... S 57
Benzakein, M. J.
Noise Abatement in Industry
Gas Turbine Noise Abatement
Some Results of Fan/Compressor Noise Research [70-WA/GT-12] (*A*) ..... Ap 56
Beres, John C. elected a vice-president of Commonwealth Associates Inc. (CAI) by the company's board of directors ..... Ap 85
Berg, Charles A. appointed chairman of University of Pittsburgh's Department of Mechanical Engineering and will receive partial leave of absence to serve as a visiting scientist with National Bureau of Standards in Washington, D. C. ..... S 97
Bergles, A. E.
Fundamental and Higher-Mode Density-Wave Oscillations in Two-Phase Flow: The Importance of the Single-Phase Region [71-HT-13] (*A*) O 62
Heat-Transfer Performance of Internally Finned Tubes [71-HT-31] (*A*) ..... O 63
Review of Two-Phase Flow Instability [71-HT-42] (*A*) ..... N 58
Bergquam, J. R.
Spectral Radiation from Alumina Powder on a Metallic Substrate [70-WA/HT-14] (*A*) .. Ap 59
Berkof, R. S.
Determination of Force-Balanced Four-Bar Linkages with Optimum Shaking Moment Characteristics [70-Mech-8] (*A*) ..... Ja 46
Theory of Shaking Moment Optimization of Force-Balanced Four-Bar Linkages [70-Mech-12] (*A*) ..... Ja 47
Berman, P. A.
Operating Concept for a 240-MW Combined Cycle Intermediate Peaking Plant [71-GT-53] (*A*) Ag 45
Bernard, G. E. deceased ..... D 83
Berra, P. Bruce
Automatic Planning of Optimal Metal-Cutting Operations and Its Effect on Machine-Tool Design [70-WA/Prod-14] (*A*) ..... Mr 60
Optimization of a Face Milling Process by Convex Programming [71-Prod-5] (*A*) ..... Jl 49
Berry, J. T.
The Prediction of Press Loads in Deep Drawing Titanium 6 Al 4V, Stainless Steel AISI 304, and Inconel X Alloys at Various Conditions of Lubrication at Elevated Temperatures [70-WA/Prod-26] (*A*) ..... Mr 63
Berry, T. F.
Joining Techniques for Fabrication of Composite Air-Cooled Turbine Blades and Vanes [71-GT-32] (*A*) ..... Jl 37
Bert, C. W.
Burst-Strength Analysis of Finite-Length, Specially Orthotropic Cylinders with Different End Closures [71-PVP-21] (*A*) ..... Ag 52
Beryllium
Advanced Image Handling (*BTR*) ..... Jl 29
Shear Strength of Beryllium, Uranium, and Tungsten as a Function of Strain, Strain Rate, and Pressure [70-WA/PT-2] (*A*) ..... Mr 65
Berzins, Raymond P. joins technical staff of Pioneer Service & Engineering Co., a Chicago-based consulting firm ..... My 88
Best, R. E.
A Traversing-Thermocouple Technique for the Rapid Measurement of Thermal Conductivity in the Range 300 to 1200 K [70-WA/Ener-2] (*A*) Ap 60
Betz, L. D. deceased ..... Jl 78
Beutel, A. P. announces retirement, after 55 years of service, from Dow Chemical Co. Ap 85
Bevilacqua, L.
The Hodograph Transformation in Plastic Waves with Discontinuous Loading Conditions [71-APMW-12] (*A*) ..... N 55
Bhat, W. V.
Noise Abatement in Industry
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Bhattacharyya, A.
Modification of Drill Point for Reducing Thrust [71-Prod-12] (*A*) ..... Jl 49
Bhattacharyya, Ajit
Modification of Drill Point for Reducing Thrust [71-Prod-12] (*A*) ..... Jl 49
Bhattacharyya, B.
Plastic Flow at the Chip-Tool Interface During Hot Machining [70-WA/Prod-1] (*A*) ..... Mr 59
Biancardi, F. R.
Noise Abatement in Industry
Gas Turbine Noise Abatement
Utility Applications for Advanced Gas Turbines to Eliminate Thermal Pollution [70-WA/GT-9] (*A*) ..... Ap 56
Bienert, Walter B.
Experimental High Performance Heat Pipes for the OAO-C Spacecraft [71-Av-26] (*A*) ..... O 57
Transient Performance of Electrical Feedback-Controlled Variable-Conductance Heat Pipes [71-Av-27] (*A*) ..... O 57
Bienstock, D.
Corrosion of Heat-Exchange Tubes in a Simulated Coal-Fired MHD System [70-WA/CD-3] (*A*) Ap 64
NO_2 Emissions at Low Excess-Air Levels in Pulverized-Coal Combustion [70-WA/APC-3] (*A*) ..... F 68
Bijlani, Subash K. appointed chief engineer for Parle Products Pvt. Ltd., Bombay, India N 89
Bills, K. W., Jr. recipient, with H. J. Wiegand, of Best Paper Award for Reliability and Maintainability 9th Conference, 1970 .... S 93
Billuris, G.
SEFOR Operating Experience [71-NE-7] (*A*) Jl 43
Biochemistry
An Anaerobic Biochemical Laboratory [71-PVP-10] (*A*) ..... Ag 51
Bioengineering
Cryogenic Blood Preservation [based on 70-WA/HT-20] ..... My 37
Preservation of Blood at Cryogenic Temperatures [70-WA/HT-20] (*A*) ..... Ap 60
Cryo-Immunology: The Antigenic Properties of the Male Rabbit Urogenital System as Studied by Selective Freezing of Its Components [70-WA/HT-19] (*A*) ..... Ap 60
Cryo-Immunology: Surgical Approach and Thermal Regimen for Freezing the Elements of the Male Rabbit Urogenital System [70-WA/HT-17] (*A*) ..... Ap 59
Film Boiling Transition Temperature for Tissue Cooled with Liquid Nitrogen [70-WA/HT-16] (*A*) ..... Ap 60
A Probe Technique for Determining the Thermal Conductivity of Tissue [70-WA/HT-18] (*A*) Ap 59
Biology
An Inventory of the Biomass—An Ecological Approach to Environmental Surveillance [70-WA/PID-12] (*A*) ..... Mr 64
Biomechanics
See also Human Factors
The Biomechanics of Torsional Fractures: The Effect of Loading on Ultimate Properties [70-WA/BHF-9] (*A*) ..... Ap 64
Occupational Biomechanics (*EN*) ..... O 75
Slow Particulate Viscous Flow in Channels and Tubes—Application to Biomechanics [71-APM-R] (*A*) ..... O 59
Biomedicine
Biomedical Materials Compatibility and the Design Challenge [71-DE-8] (*A*) ..... Jl 45
Birefringence
The Separation of Membrane and Bending Shears in Shell with Two Birefringement Coatings [70-WA/APM-28] (*A*) ..... Je 46
Birget, Charles D. leaves retirement to rejoin Commonwealth Associates Inc. as senior staff engineer in Facilities Engineering Div. .. Mr 84
Birkebak, R. C.
Spectral Emittance of Apollo 12 Lunar Fines [71-HT-21] (*A*) ..... O 62
Birkicht, E. Roy retires at Kodak Park Division, Eastman Kodak Co. ..... Ap 85
Biron, A.
Cumulative Fatigue Damage Under Stress-Controlled Conditions [71-Met-M] (*A*) ..... S 54
Bishop, R. E. D.
On the Use of Balancing Machines for Flexible Rotors [71-Vibr-73] (*A*) ..... N 54
Bits
Application of Tungsten Carbide to Oilfield Rotary Drill Bits [71-Pet-21] (*A*) ..... D 49
Black, Arthur W. joins Hemeon Associates, Air Pollution Research Engineers, Pittsburgh, Pa., as associate director ..... My 88
Black, Henry M. to retire June 30, 1972, as head of Department of Mechanical Engineering, College of Engineering, Iowa State University of Science and Technology, Ames, Iowa ..... O 89
Black, J. T.
On the Fundamental Mechanism of Large Strain Plastic Deformation, Electron Microscopy of Metal Cutting Chips [70-WA/Prod-11] (*A*) Mr 60
Shear Front-Lamella Structure in Large Strain Plastic Deformation Processes [71-Prod-1] (*A*) Jl 48
Blades, Blading
Analytical and Experimental Studies of Two-Dimensional Flows in a Radial Bladed Impeller [71-GT-20] (*A*) ..... Jl 36
On the Behavior of Bladings in the Small Reynolds Number Regime [70-WA/GT-11] (*A*) .... My 56
A Blade Theory of an Impeller with an Arbitrary Surface of Revolution [71-GT-17] (*A*) ..... Jl 36
The Coupled Bending-Bending Vibration of Pre-Twisted Tapered Blading [71-Vibr-78] (*A*) .. D 52
Development of Borsic-Aluminum Composite Fan Blades for Supersonic Turbofan Engines [71-GT-90] (*A*) ..... Jl 42
On Flow Past a Supercavitating Cascade of Cambered Blades [71-FE-6] (*A*) ..... Ag 54
Gas Turbine Blade Heat Transfer Augmentation by Impingement of Air Jets Having Various Configurations [71-GT-9] (*A*) ..... Ag 44
Holographic Analysis of Turbine Blades [71-GT-84] (*A*) ..... Jl 41
Joining Techniques for Fabrication of Composite Air-Cooled Turbine Blades and Vanes [71-GT-32] (*A*) ..... Jl 37
Metal Matrix Composite Fabrication Procedures for Gas Turbine Engine Blades [71-GT-46] (*A*) Jl 38
A New Method for the Calculations of Blade Loadings in a Radial Flow Compressor [71-GT-60] (*A*) ..... Jl 39
Performance of Compressor Blade Rows in a Sloping Flowpath [71-GT-13] (*A*) ..... Jl 36
Results of Experiments for Determining the Influence of Blade Profile Changes and Manufacturing Tolerances on the Efficiency, the Enthalpy Drop, and the Mass Flow of Multi-Stage Axial Turbines [70-WA/GT-4] (*A*) .. My 56
Blair, J. E. deceased ..... S 99
Blake, Alfred D. deceased ..... Ja 107
Blake, Joel W.
Russia's 100-MW Gas Turbine (*C*) ..... Ap 68
Blakeman, S. P. deceased ..... Ag 87
Blanchard, R. S., Jr.
Automobile Bumper Testing with the Liberty Mutual Crash Simulator [71-Vibr-107] (*A*) .. D 54
Blanking
Unconfined Elastomer Die Blanking [based on 71-Prod-6]
Unconfined Elastomer Die Blanking [71-Prod-6] (*A*) ..... Jl 49
Blass, J. J.
Short-Time, Biaxial Creep of an Aluminum Alloy with Abrupt Changes of Temperature and State of Stress [70-WA/APM-41] (*A*) ..... Je 47
Blast
The Dynamic Response of Blast Shields and Barricades to Impulsive Loadings [71-PVP-48] (*A*) ..... S 48
Blast Attenuation
Selection of Equations-of-State for Blast Attenuation [70-WA/APM-12] (*A*) ..... My 58
Blecher, William A.
Development of a Prototype Vapor Diffusion Water Reclamation System [71-Av-13] (*A*) O 56
Blick, E. F.
Skin Friction Drag and Velocity Profile Measurement Techniques in Two-Phase Flow [71-FE-32] (*A*) ..... S 52
Blocks
Approximate Stress Analysis of Pressurized Bore Intersections in Rectangular Blocks [71-PVP-35] (*A*) ..... Ag 53
Bloedorn, Charles W. named manager of sales for Allis-Chalmers Power Systems, Inc., for Indiana, Ohio, Kentucky, Illinois, Alabama, Georgia, Florida, and parts of Mississippi and Michigan ..... Ag 85
Blood
Blood Pressure via the Ear (*BTR*) ..... N 37
Cryogenic Blood Preservation [based on 70-WA/HT-20] ..... My 37
Preservation of Blood at Cryogenic Temperatures [70-WA/HT-20] (*A*) ..... Ap 60
Bloom, Frederick S. receives Distinguished Service Award from Carnegie-Mellon University Alumni Association ..... D 80
Blowing
Transformation of Compressible Turbulent and Laminar Boundary Layers with and without Wall Blowing [71-FE-37] (*A*) ..... S 53
Blowoff
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Design and Performance of High-Pressure Blowoff Silencers [70-WA/Pet-1] (*A*) Ap 54
Bluman, D. E.
Water Resources for 2070 (*C*) ..... D 56
Blumberg, L. deceased ..... S 99
Bobisch, W. J.
Certification for Material Safety of Hyperbaric Facilities [71-PVP-65] (*A*) ..... S 50
Boegly, W. J., Jr.
Engineering a Better Environment
11: Underground Utility Tunnels [based on 70-WA/Ener-11] ..... S 27
The Potential Use of Utility Tunnels in Urban Areas [70-WA/Ener-11] (*A*) ..... Ap 62

Boeing Co.
Boeing 747
Bearing Up with the 747 (*BTR*).....Ja 32
Vertol Division
Urban Mass Transportation Administration
Urban Rapid Rail Vehicle and Systems Program
Rapid Transit Car Design Contract (*NB*) Ag 67

Boelter Library
Boelter (Llewellyn M. K.) Library to Purdue (*EN*) Jl 58

Boettcher, Roy E. appointed factory manager by Conveyor and Power Transmission Div., Rex Chainbelt Inc., Milwaukee, Wis. ...Je 77

Bogdanoff, John L. elected Fellow ASME N 90

Boggs, James appointed to National Advisory Research Resources Council for a term ending September 30, 1974.....Mr 84

Bogy, D. B.
On the Plane Elastostatic Problem of a Loaded Crack Terminating at a Material Interface [71-APM-O] (*A*).....O 59
Two Edge-Bonded Elastic Wedges of Different Materials and Wedge Angles Under Surface Tractions [70-WA/APM-58] (*A*).....Je 49

Boilers, Boiling
Boiling-Curve Measurements from a Controlled Heat-Transfer Process [71-HT-J] (*A*).....N 59
Boiling-Flow Instabilities in a Cross-Connected Parallel-Channel Upflow System [71-HT-12] (*A*) O 61
Combustion Safety in Industrial Boilers [71-IPwr-3] (*A*).....S 53
Decision to Convert or Replace the Boiler [71-IPwr-1] (*A*).....S 53
Film Boiling Transition Temperature for Tissue Cooled with Liquid Nitrogen [70-WA/HT-16] (*A*).....Ap 60
Frequency Response of Pool Boiling Plants [71-HT-A] (*A*).....N 58
New Mini-Boiler for Shops (*OS*).....Ag 42
No Tuition Boiler Seminars (*EN*).....D 68
Single Process Plant Application of a Gas Turbine Generator with Recovery Boiler [71-GT-30] (*A*) Jl 37
Steel Mill Orders Boiler (*OS*).....Ag 42
Superheat Layer Thickness Measurements in Saturated and Subcooled Nucleate Boiling [71-HT-43] (*A*).....N 58

Bolden, C. W. deceased.....O 91

Bolsters, Bolstering
Computer Analysis of a Railroad Freight Car Bolster Utilising the Finite Element Method [70-WA/RR-7] (*A*).....Je 42
Design Considerations for Car Body Bolster Through Sill-Cushioned Underframe Freight Car [70-WA/RR-5] (*A*).....Je 42

Bolt, S. E.
Experimental and Finite Element Stress Analysis of a Thin-Shelled Cylinder-to-Cylinder Model [71-PVP-36] (*A*).....Ag 53
Experimental Determinations of Plastic Collapse Loads for Pipe Elbows [71-PVP-37] (*A*)..Ag 53

Bolton, R.
Large Amplitude Vibrations of Circular Plate on a Uniform Elastic Foundation [71-Vibr-9] (*A*) N 48

Bolts
Easy Insert, Easy Release Fastener (*NTB*) O 45
Tell-Tale Bolt (*BTR*).....Jl 25

Bolz, Harold A. president of American Society for Engineering Education 1971–1972 board of directors.....N 89

Bombs
Bomb Threats (*NB*).....Ap 72

Bond Graph Technique
Analysis of Nonlinear Transient Motion of Cables Using Bond Graph Method [71-Vibr-21] (*A*) N 50
State-Space Formulation for Bond Graph Models of Multiport Systems [70-WA/Aut-2] (*A*)....F 69

Bonds, Bonding
Adhesive-Bonded Structural Joints (*NTB*)...Jl 31
Controlling Structural Fatigue Through Adhesive Bonding [71-DE-27] (*A*).....Jl 47
Dynamic Response of a Rigid Footing Bonded to an Elastic Half Space [71-APMW-15] (*A*) N 56
Hot Isostatic Processing [based on 70-PVP-2] F 33
Nondestructive Sonic Testing of Adhesive-Bonded Composites (*NTB*).....Jl 30
Steady Motion of a Rigid Strip Bonded to an Elastic Half Space [70-WA/APM-56] (*A*) Je 49
Two Edge-Bonded Elastic Wedges of Different Materials and Wedge Angles Under Surface Tractions [70-WA/APM-58] (*A*).....Je 49

Boner, R. C.
Experience with Gas Turbines as Prime Movers for Underground Storage of Natural Gas [71-GT-27] (*A*).....Jl 36

Bones
Elastic Analysis of Condylar Structures [70-WA/BHF-1] (*A*).....Ap 62
The Investigation of Bone's Substructure Using Megaherts Sound and a Porous Model [70-WA/BHF-11] (*A*).....Ap 63
Mechanical Properties and Histological Structure of Human Cortical Bone [70-WA/BHF-7] (*A*) Ap 63
A Porous Black Model for Cancellous Bones [70-WA/BHF-2] (*A*).....Ap 62
Tensile Properties of Bone at High Strain Rates [70-WA/BHF-10] (*A*).....Ap 64

Bonham, W. E.
Calculating the Response of a Four-Bar Linkage [70-Mech-69] (*A*).....Ja 52

Bonthron, R. J.
Subharmonic Rotor Instability Due to Elastic Asymmetry [71-Vibr-57] (*A*).....N 52

Bonura, M. S.
Life-Support System Operational and Maintenance Data for the 90-Day Space Station Simulator Test [71-Av-3] (*A*).....O 55

Book Reviews
A Guide to the Industrial Archaeology of Europe N 62
Nuclear Power and Its Critics.....D 57
Nuclear Power and the Public.....D 57
The Revolt of the Engineers: Social Responsibility and the American Engineering Profession..O 66

Booker, J. F.
A Finite Element Model for Distributed Parameter Turbomotor Systems [71-Vibr-56] (*A*).....N 52

Books
See Engineering Societies Library; Literature

Boolean Algebra
See Algebra, Boolean

Booms
Normal Mode Solution for the Vibrational Motions of Long Flexible Booms on the RAE Satellite [71-DE-J] (*A*).....Jl 48

Bores, Boring
Approximate Stress Analysis of Pressurized Bore Intersections in Rectangular Blocks [71-PVP-35] (*A*).....Ag 53
Big Bore (*PB*).....O 50

Boretos, J. W.
Biomedical Materials Compatibility and the Design Challenge [71-DE-8] (*A*).....Jl 45

Borg, E. H. deceased.....S 99

Boron
Design and Development of a Boron-Glass-Epoxy Lightweight Composite Gear Case [71-GT-85] (*A*).....Jl 41

Borsic
See Aluminum

Bothe, M. deceased.....D 83

Bottema, O.
On the Smallest Circle Determined by Three Positions of a Rigid Body [70-Mech-11] (*A*) Ja 47

Boundaries
Analytical Solution to Steady-State Heat-Conduction Problems with Irregularly Shaped Boundaries [71-HT-P] (*A*).....N 59
Conditions for the Rupture of a Lubricating Film Part II: New Boundary Conditions for Reynolds Equation [70-Lub-3] (*A*)...Ja 42
Determination of the Unloading Boundary in Longitudinal Elastic-Plastic Stress Wave Propagation [71-APM-15] (*A*).....S 56
Hard Tissue as a Composite Material
Part 1: Bounds on the Elastic Behavior [70-WA/BHF-3] (*A*).....Ap 62
Prediction of the Geometry Changes of the Free Boundary During Upsetting by the Slip-Line Theory [70-WA/Prod-17] (*A*).....Mr 61

Boundary Layers
Drag Force Measurements of a Compressible Turbulent Boundary Layer on an Adiabatic Smooth Flat Plate [70-WA/FE-26] (*A*)....F 74
Effect of Normal Shock on Turbulent Boundary-Layer Parameters [71-FE-16] (*A*).....Ag 55
Experimental Hydrodynamics of the Accelerated Turbulent Boundary Layer With and Without Mass Injection [71-HT-F] (*A*).....N 58
An Explicit Scheme for the Calculation of Three-Dimensional Turbulent Boundary Layers [71-FE-19] (*A*).....S 51
A Family of Hodograph Models for the Crossflow Velocity Component of Three-Dimensional Turbulent Boundary Layers [71-FE-1] (*A*) Ag 54
Heat and Mass Transfer in an Incompressible Turbulent Boundary Layer [71-HT-10] (*A*) O 61
Heat Transfer to the Transpired Turbulent Boundary Layer [71-HT-44] (*A*).....N 58
Incompressible Laminar Boundary Layers on a Parabola at Angle of Attack: A Study of the Separation Point [71-APM-31] (*A*).....O 58
An Instrument for Skin-Friction Measurements in Thin Boundary Layers [71-FE-37] (*A*).....S 52
Local Non-Similarity Thermal Boundary-Layer Solutions [71-HT-L] (*A*).....N 59
A Momentum-Integral Analysis of the Three-Dimensional Turbine End-Wall Boundary Layer [71-GT-6] (*A*).....Ag 44
Noise Abatement in Industry
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Nonsimilar Solution of the Laminar Boundary Layer in an Oscillatory Flow by an Integral Matrix Method [71-FE-10] (*A*).....Ag 54
A Solution of Shock-Induced Boundary-Layer Interaction Problems by an Integral Method [71-APM-21] (*A*).....S 56
Transformation of Compressible Turbulent and Laminar Boundary Layers with and without Wall Blowing [71-FE-37] (*A*).....S 53
Turbulent Boundary Layer and Heat Transfer Measurements Along a Convergent-Divergent Nozzle [71-HT-4] (*A*).....O 61
The Turbulent Boundary Layer with Mass Transfer and Pressure Gradient [71-APM-2] (*A*) S 55
Variational Method for a Pseudoplastic Fluid in a Laminar Boundary Layer over a Flat Plate [70-WA/APM-39] (*A*).....Je 47

Bounds
Bounds on Motions of Some Lumped and Continuous Dynamic Systems [71-APMW-3] (*A*) N 55
Response Bounds for Columns with Transient Loads [70-WA/APM-32] (*A*).....Je 47
Stability and Boundedness Domains of Autonomous Discrete-Time Systems [70-WA/Aut-12] (*A*).....F 70
Upper Bounds to Limit Pressures of Branch-Pipe Lateral Connections
Part I: Bounds for Branch/Pipe Diameter Ratios Smaller than 0.7 [71-PVP-43] (*A*).....S 48
Part II: Bounds and Reliability for Branch/Pipe Diameter Ratios Larger than 0.7 [71-PVP-44] (*A*).....S 48

Boure, J. A.
Review of Two-Phase Flow Instability [71-HT-43] (*A*).....N 53

Bourke, P. J.
Experimental Explanation of Deterioration in Heat Transfer to Supercritical Carbon Dioxide [71-HT-24] (*A*).....O 62

Bowerman, M. R. deceased.....Je 80

Bowie, G. E.
Exploitation of Cu-Rich Damping Alloys
Part 1—The Search for Alloys with High Damping at Low Stress [71-Vibr-106] (*A*).....D 54

Bowley, D. L.
Effect of Heat Treatment of the Properties of 3½ Percent Nickel Steel [71-Pet-29] (*A*)...D 50

Bowman, Robert A. elected a senior vice-president of Bechtel Corp. Je 77; to receive ASME Honorary Membership at 1971 Winter Annual Meeting.....S 89

Boy Scouts
Richmond Group, Dayton Section of ASME, conducts training program for Boy Scout Merit Badge in mechanical engineering.....My 87

Boyack, B. E.
Integral Method for Flow Between Corotating Disks [70-WA/FE-4] (*A*).....F 72

Boyce, M. P.
A New Method for the Calculations of Blade Loadings in a Radial Flow Compressor [71-GT-60] (*A*).....Jl 39

Skin Friction Drag and Velocity Profile Measurement Techniques in Two-Phase Flow [71-FE-32] (*A*).....S 52

Boyd, W. K.
Materials Selection for Design of Pollution Control Equipment [71-DE-12] (*A*).....Jl 45

Boyer, C. B.
Hot Isostatic Processing [based on 70-PVP-2] F 33

Boynton, C. J. deceased.....O 91

Bozza, C.
Design and Optimization of Direct-Current Machines [71-Vibr-65] (*A*).....N 53

Bozzola, R.
A Numerical Technique for the Calculation of Transonic Flows in Turbomachinery Cascades [71-GT-42] (*A*) ..... Jl 38
Bradfield, W. S.
Experimental Study on the Dynamics of a Gas-Levitated Disk [71-APM-3] (*A*) ..... S 55
Bradford, Leonard R. deceased ..... Ja 107
Bradt, David M. elected Fellow ASME .. Mr 85
Brady, A. J.
Analysis and Physiological Monitoring of the Human Left Ventricle [70-WA/BHF-14] (*A*) Ap 63
Bragg, G. M.
Arbitrary Mean Flow in Adverse Pressure Gradients [70-WA/FE-10] (*A*) ..... F 72
Braille
Computer Braille (*BTR*) ..... Ag 38
Computer Braille (*C*) ..... O 66
Brakes
Friction-Instability: A New Design Parameter for Brakes [71-DE-K] (*A*) ..... Jl 48
Hydraulic Brake Safety Valve (*NTB*) ..... Ja 35
Brancato, R.
Evaluation of Cardiac Work by Means of the Thermodilution Technique Employing the Thermocatheter [70-WA/Temp-2] (*A*) ... My 54
Branch Connections
Photoelastic Study and Fatigue Tests of a Contoured, Integrally Reinforced Branch Connection [71-PVP-5] (*A*) ..... Ag 50
Brand, Frederick F. deceased ..... Mr 88
Brandt, D. E.
The Development of a Turbine Wheel Design Criterion Based upon Fracture Mechanics [71-GT-10] (*A*) ..... Ag 44
Brass
Mechanics of Tool-Workpiece Engagement and Incipient Deformation in Machining of 70/30 Brass [71-Prod-4] (*A*) ..... Jl 48
Braton, Norman R.
Used Tire Pulverizer (*BTR*) ..... O 48
Bravenec, E. V.
Analysis of Brittle Fractures During Fabrication and Testing [71-PVP-53] (*A*) ..... S 50
Development and Performance of a Vanadium-Nitrogen Treated Steel for High Strength Pipeline Fittings [71-Pet-18] (*A*) ..... D 49
Brayton Cycle
Atomic-Powered Space System (*BTR*) ..... F 57
Brazil
Brasilia Retes Founding (*OS*) ..... Ag 42
New Water Pump (*OS*) ..... Je 39
165,000-kw Francis Turbine (*OS*) ..... Ja 41
Ilha Solteira (*C*) ..... Jl 52
Power for Brazil (*OS*) ..... Je 39
Brazing
Influence of Brazing on Very Compact Heat-Exchanger Surfaces [71-HT-29] (*A*) ..... O 63
Joining Metals with Different Expansion Rates (*NTB*) ..... Ag 37
Brecker, J.
Grinding Wheel Elasticity [70-WA/Prod-21] (*A*) Mr 62
Bredin, Harold
Boon for Management: Computerized Die Design S 21
(*editor*) Neutron Radiography ..... Jl 21
Breer, Carl deceased ..... Ap 88
Brennan, Patrick J.
Transient Performance of Electrical Feedback-Controlled Variable-Conductance Heat Pipes [71-Av-27] (*A*) ..... O 57
Bridges
Diagonal-Cable Bridge (*OS*) ..... Mr 52
The Suspension Bridge: Its Aeroelastic Problems [71-Vibr-38] (*A*) ..... N 51
Briefing the Record
See News
Briggs, E. M.
Fluids for Deep Sea Applications [71-UnT-4] (*A*) D 46
Briggs, Norman H. joins Pioneer Service & Engineering Co., Chicago-based consulting firm, as instrumentation and control engineer S 97
Brighton, J. A.
Confined Jet Mixing for Nonseparating Conditions [70-WA/FE-2] (*A*) ..... F 71
Brill, W. A.
Large Engines—Analyze Before Fabricating [71-DGP-7] (*A*) ..... Ag 48
British Gas Council
SNG Agreement (*OS*) ..... D 44
Britten, C. R. deceased ..... N 92
Brittleness
Analysis of Brittle Fractures During Fabrication and Testing [71-PVP-53] (*A*) ..... S 50
Analysis of Radiation-Induced Embrittlement Gradients on Fracture Characteristics of Thick-Walled Pressure Vessel Steels [71-PVP-7] (*A*) Ag 50
Embrittlement of Precipitation Hardenable Nickel-Base Alloys by Oxygen [71-Met-D] (*A*) .... Ag 48
Fracture Mechanics and Nondestructive Testing of Brittle Materials [71-PVP-4] (*A*) ..... Ag 50
High Temperature Embrittlement Phenomena of 2¼ Cr-1Mo Weldments [71-Pet-19] (*A*) ... D 49
Broadbent, Harry E. now associated with American Welding Society at its Miami, Fla., office as manager of technical operations O 89
Brookley, W. Q.
Cleaner Fuel Through Nitrogen Inserting [71-GT-45] (*A*) ..... Jl 38
Brootzkoos, Sergius D. deceased ..... Ap 88
Brose, Harlan F.
Hydrogen Depolarized Cell for a CO_2 Concentrator [71-Av-37] (*A*) ..... O 58
Brossart, Robert C. appointed principal mechanical engineer in Engineering Department of Dravo Corp. Engineering Works Div. Je 77
Brown, Donald A. deceased ..... Mr 88
Application and Operation of a 3000-hp Turbo-Compressor Unit [71-GT-23] (*A*) ..... Ag 45
Brown, G. S., Jr.
Heat-Transfer Performance of Internally Finned Tubes [71-HT-31] (*A*) ..... O 63
Brown, George A. vice-chairman of AIAA technical committee, appointed director of technologies panels, of the technical committee, on marine systems and technology Ap 86
The Effect of Heat Transfer on the Flow of High Temperature Glass Through Small Nozzles [70-WA/HT-12] (*A*) ..... Ap 59
Liquid-Vapor Interactions in a Constant-Area Condensing Ejector [71-FE-21] (*A*) ..... S 52
Brown, R. S.
Velocity and Acceleration Synthesis of Four-Bar Mechanisms by Curve Matching [70-Mech-42] (*A*) ..... Ja 50
Brown, W. B. deceased ..... N 92
Browning, R. L.
Using Systems Analysis to Improve Protective Design [71-Pet-22] (*A*) ..... D 49
Bruback, T. M. deceased ..... D 83
Brundrett, E.
Heat and Mass Transfer in an Incompressible Turbulent Boundary Layer [71-HT-10] (*A*) O 61
Bruscato, R.
High Temperature Embrittlement Phenomena of 2¼Cr-1Mo Weldments [71-Pet-19] (*A*) .... D 49
Brush, Harvey F. Bechtel Corp. vice-president, moves to Southern California-based Vernon Div., with responsibility for engineering, construction, and project activities Je 77; elected Fellow ASME ..... N 90
Bryant, J. M.
Operational Logistics in an Air Pollution Monitoring Network [70-WA/PTC-3] (*A*) ..... My 52
Bubar, Hudson H. deceased ..... Ap 88
Bubbles
Bubble Level as Pitch and Roll Sensor (*NTB*) O 44
The Hydrogen Bubble Technique of Flow Visualization: Factors Affecting Bubble Size and Buoyancy [71-FE-36] (*A*) ..... S 53
The Kinetic and Thermal Expansion of Vapor Bubbles [71-FE-13] (*A*) ..... Ag 55
The Natural Frequencies of Two Spherical Bubbles Oscillating in Water [70-WA/FE-7] (*A*) .... F 72
Thermal Effects in the Free Oscillation of Gas Bubbles [70-WA/FE-11] (*A*) ..... F 72
Ultrasonic Velocity of Sound and Void Fraction in a Bubbly Mixture [71-FE-26] (*A*) ..... S 52
Bucci, R.
The Separation of Membrane and Bending Shears in Shell with Two Birefringement Coatings [70-WA/APM-28] (*A*) ..... Je 46
Buckets
Coal Buckets on a Wheel (*PB*) ..... N 46, 47
World's Largest Wheel Excavator (*OS*) ..... N 45
Buckley, C. P.
Precision Control for Deep Ocean Work [70-WA/UnT-5] (*A*) ..... Je 45
Buckling
Asymptotic Formulas for the Buckling Stresses of Axially Compressed Cylinders with Localized or Random Axisymmetric Imperfections [71-APM-29] (*A*) ..... S 57
Axisymmetric Postbuckling and Nonsymmetric Buckling of a Spherical Shell Compressed Between Rigid Plates [71-APMW-7] (*A*) ... N 55
Behavior of a Steep Prestressed Arch Made from a Buckled Strut [70-WA/APM-15] (*A*) .... My 58
Buckling and Postbuckling Behavior of Clamped Shallow Spherical Shells Under Axisymmetric Ring Loads [71-APM-9] (*A*) ..... S 56
Buckling of Vessels Composed of Combinations of Cylindrical and Spherical Shells [70-WA/APM-19] (*A*) ..... My 58
Creep Buckling of Thin-Walled Circular Cylindrical Shells Subject to Radial Pressure and Thermal Gradients [70-WA/APM-8] (*A*) ..... My 57
The Effect of Initial Imperfections on the Buckling Load of Shallow Circular Arches [71-APMW-13] (*A*) ..... N 56
Nonlinear Vibrations of a Buckled Beam Under Harmonic Excitation [70-WA/APM-48] (*A*) Je 48
Thermal Buckling and Snapping of a Circular Ring [71-DE-B] (*A*) ..... Jl 48
Budenholzer, R. J.
Cyclic Energy Demands Supplied Economically with Gas Turbines and Combined Cycle Plants [71-GT-71] (*A*) ..... Jl 40
Budiansky, B.
Asymptotic Formulas for the Buckling Stresses of Axially Compressed Cylinders with Localized or Random Axisymmetric Imperfections [71-APM-29] (*A*) ..... S 57
Budinski, K. G.
Photofabrication of Metal Parts [based on 71-DE-32] ..... N 19
Photofabrication of Metal Parts [71-DE-32] (*A*) Jl 47
Bueckner, H. F.
Thermal Control Optimization for Cylindrical Spacecraft [70-WA/Aut-13] (*A*) ..... F 70
Buelow, Jack named manager of the Chip Systems Div., Mayfran Inc. ..... Je 78
Buildings
Performance Evaluation of a Gas Turbine Drive Industrial Building Cooling System [71-GT-49] (*A*) ..... Jl 39
Bulanowski, E. A., Jr.
Hemodynamic Flow in Anisotropic, Viscoelastic Thick-Wall Vessels [70-WA/APM-59] (*A*) Je 49
Bulk Material
Arrangement and Operation of a Bulk Material-Handling Terminal [70-WA/MH-3 (*A*) ... My 53
High-Capacity Belt Conveyor Systems for Handling Bulk Material [70-WA/MH-1] (*A*) My 53
A New Generation of Bulk Materials-Handling Systems Meets the Growing Demands of the Power, Steel, and Transportation Industries—Innovations in Compatible High-Capacity Components Enable Development of Fully Integrated High-Capacity Systems [70-WA/MH-2] (*A*) ..... My 53
Bulleid, O. V. deceased ..... Ag 87
Bulleid Memorial Lectures
Engineering for Nuclear Power is theme of 1971 Bulleid Memorial Lectures at University of Nottingham, England (*EN*) ..... My 77
Bumpers
Flexible Protection for Metal Bellows (*NTB*) Ag 36
Buoyancy
The Hydrogen Bubble Technique of Flow Visualization: Factors Affecting Bubble Size and Buoyancy [71-FE-36] (*A*) ..... S 53
Ice Cubes and Champagne (*PB*) ..... O 51
Underwater Lift Truck [based on 70-WA/UnT-13] My 20
The Buoyancy Transport Vehicle (BTV) [70-WA/UnT-13] (*A*) ..... Je 46
Burchett, O. J.
Using Laser Holography for Nondestructive Testing ..... Mr 27
Burck, L. H.
Creep of Single Crystal Nickel-Base Superalloy Tubes Under Biaxial Tension [71-APM-1] (*A*) S 55
Burge, H. L.
A Survey of Nitrogen-Oxides Control Technology and the Development of a Low NO_x Emissions Combustor [70-WA/Pwr-2] (*A*) ..... My 54
Burggraf, F.
Heat-Transfer Parameters and Transport Properties for Air and Jet Fuel-Air Mixtures [71-HT-41] (*A*) ..... N 58
Burghard, H. C., Jr.
Investigation of Cracking in Nuclear Reactor Primary Piping System [71-PVP-33] (*A*) .. Ag 53
Burgreen, D.
Thermal Buckling and Snapping of a Circular Ring [71-DE-B] (*A*) ..... Jl 48
Burman, Paul G. deceased ..... My 91
Burners
New Industrial Burner (*BTR*) ..... Je 32
Burnham, Donald C. to receive Distinguished Life Membership in the American Society for Metals ..... N 89
Burnstein, A. H.
The Biomechanics of Torsional Fractures: The Effect of Loading on Ultimate Properties [70-WA/BHF-9] (*A*) ..... Ap 64
Elastic Analysis of Condylar Structures [70-WA/BHF-1] (*A*) ..... Ap 62

Burst, Bursting
See also Rupture
Designing Rotor Burst Protection [71-GT-70] (*A*) Jl 40
Experimental Effort on Bursting of Constrained Disks as Related to the Effective Utilization of Yield Strength [71-PVP-49] (*A*) ..... S 48
Burton, W. H.
For Plant Management: Corrosion-Control Techniques [based on 70-PEM-23] ..... Ja 10
Burwell, J. T. deceased ..... Jl 78
Bushnell, J. C.
An Experiment on Laser-Generated Stress Waves in a Circular Elastic Ring [71-APMW-2] (*A*) N 55
Business
Capital Spending
The General Picture [1971 outlook] (*NR*) .. F 89
Conference on Data Communication and Business Strategy Stresses Change—Action Called for Now (*NR*) ..... D 65
Engineering a Better Environment
7: The Environment-Energy Balance: Needed Actions ..... My 33
Environment-Energy Balance (*C*) Jl 51; Ag 56
The Role of Private Enterprise in a Post-Industrial Society
1: Education, Technology and Business, A Case Study of Business in the Future—Problems and Opportunities (*TL*) ..... Ag 71
Technology for Tomorrow vs. Profit for Today [1970 Wright Lecture] ..... My 16
Technology vs. Profit (*C*) ..... Jl 52
Ten Years' Progress in Management, 1960–1970
IV: Management Education
Dilemmas for Business Education in the 1970's [70-WA/Mgt-8] (*A*) ..... Mr 58
Business Machines
"Adaptive Architecture" (*BTR*) ..... F 54
Business Equipment Expo Features Word Processing Symposium—Signals End to Paper Pollution (*NR*) ..... D 63
A Handful of Computer (*BTR*) ..... Ap 48
Mini-Sized Calculator (*BTR*) ..... F 53
Versatile Office Computer (*BTR*) ..... F 55
Bussell, Joel G. appointed manager of marketing services for Formsprag Co. ..... My 88
Bussell, W. H.
An Iterative Method for Analyzing Oscillating Cam Follower Motion [70-Mech-23] (*A*) ... Ja 48
The Use of a Planar Mechanism Synthesis to Produce a Spherical Path Generator Linkage [70-Mech-51] (*A*) ..... Ja 51
Bussey, Lynn E. receives Ph. D. in industrial engineering; is named associate professor in Department of Industrial Engineering at Kansas State University, Manhattan, Kan. ..... Ap 85
Butting
Butt Welder for Fine-Gage Wire (*NTB*) .... Je 30
Byars, E. F.
Craniometric Measurements of Human Skulls [70-WA/BHF-8] (*A*) ..... Ap 63
Byke, R. M.
Space Station Life Support System Definition [71-Av-13] (*A*) ..... O 55
Byram, K. V.
Reflective Cooling Ponds [70-WA/Pwr-4] (*A*) My 54
Byrne, Bill feted; receives plaque at Annual Spring Roundup of ASME Metropolitan Section ..... Jl 75

C

Cables
See also Insulation
Analysis of Nonlinear Transient Motion of Cables Using Bond Graph Method [71-Vibr-21] (*A*) N 50
Diagonal-Cable Bridge (*OS*) ..... Mr 52
Free Vibrational Characteristics of Pretensioned Cable Roofs [71-Vibr-4] (*A*) ..... N 48
Cadman, R. V.
Computation of Force Traces for the Rolamite [70-Mech-10] (*A*) ..... Ja 46
Calandria
Zircaloy Reactor Vessel (*OS*) ..... D 44
Calculation Methods
Calculation of Correlation Matrices for Linear Systems Subjected to Nonwhite Excitation [71-APMW-10] (*A*) ..... N 55
A New Method for the Calculations of Blade Loadings in a Radial Flow Compressor [71-GT-60] (*A*) ..... Jl 39
A New Method of Screw Strength Calculation [71-DE-G] (*A*) ..... Jl 48
Calculators
Mini-Sized Calculator (*BTR*) ..... F 53
Calibration
Calibration of Constant-Temperature Hot-Wire Anemometers at Low Velocities in Water with Variable Fluid Temperature [71-HT-9] (*A*) O 61
Transient Method of Calibrating a Piezoelectric Accelerometer for the High g-Level Range [71-Vibr-43] (*A*) ..... N 52
California
Human Resources Department
Labor Department [of U. S.] Registry (*NB*) Ja 63
Out of Work? VEST Offers Answers to Professionals ..... Jl 57
VEST Provides Quick Job Match ..... Ag 118; S 126; O 116; N 118; D 118
Water Resources Department
Fresh Water to L. A. (*NB*) ..... Je 58
Calkins, J. M.
A Synopsis of the Use of Fluerics in Medicine [70-WA/Flcs-16] (*A*) ..... Je 44
Callaghan, J. C.
Measurement of the Characteristic Impedance of Fluidic Lines [70-WA/Flcs-14] (*A*) ..... Je 44
Callahan, J. T.
Heat Transfer Characteristics in Air Fluidized Solids up to 900 F [70-WA/Temp-3] (*A*) My 54
Cameron, A.
Optical Analysis of Ball Bearing Starvation [70-Lub-19] (*A*) ..... Ja 44
Camp, Eugene V. deceased ..... My 91
Campbell, Dan
Identifying the Engineer (*C*) ..... Je 51
Campbell, Olin R., Jr.
ASME Constitution (*C*) ..... Ap 67
Campbell, R. D.
Creep/Fatigue Interaction Correlation for 304 Stainless Steel Subjected to Strain-Controlled Cycling with Hold Times at Peak Strain [71-PVP-6] (*A*) ..... Ag 50
Cams
An Iterative Method for Analyzing Oscillating Cam Follower Motion [70-Mech-23] (*A*) ..... Ja 48
Multiple-Harmonic Cam Profiles [70-Mech-59] (*A*) Ja 51
Polydyne Cam Mechanisms for Typehead Positioning [71-Vibr-97] (*A*) ..... N 54
Spring and Follower Characteristics Due to Internal Damping and Cam Actuation [70-Mech-76] (*A*) Ja 53
Canada
The Use of Gas Turbines in Gas Pipeline Service in Western Canada—Present and Future [71-GT-37] (*A*) ..... Jl 38
Canadian Society for Mechanical Engineers
CSME Receives Publishing Grant (*NB*) .... Je 59
Cannon, J. E.
Transient Method of Calibrating a Piezoelectric Accelerometer for the High g-Level Range [71-Vibr-43] (*A*) ..... N 52
Cantilevers
Determination of Aerodynamic Behavior of Cantilevered Stacks and Towers of Circular Cross Section [71-Pet-36] (*A*) ..... D 51
Dynamic Instability of a Cantilever Column Subjected to a Follower Force Including Thermomechanical Coupling Effect [71-APM-L] (*A*) O 60
The Effects of Shear Deformation and Rotary Inertia on the Lateral Frequencies of Cantilever Beams in Bending [71-Vibr-79] (*A*) ..... D 52
Stability of an Unsymmetrical Rotating Cantilever Shaft Carrying an Unsymmetrical Rotor [71-Vibr-58] (*A*) ..... N 53
Canty, J. M.
An Anaerobic Biochemical Laboratory [71-PVP-10] (*A*) ..... Ag 51
Capillaries
Vaporization from Capillary Wick Structures [71-HT-35] (*A*) ..... O 63
Capital Spending
The General Picture [1971 outlook] (*NR*) ..... F 89
Capsules
Fabrication of NEMO Type Spherical Acrylic Capsules for Underwater Vehicles [70-WA/UnT-4] (*A*) ..... Je 45
Carbide
Frictional Characteristics of Oxide-Treated and Untreated Tungsten-Carbide Tool [70-WA/Prod-5] (*A*) ..... Mr 60
Carbon
Carbon Composite Technology ..... F 21
Carbon Dioxide
See also Manned Space Station
Experimental Explanation of Deterioration in Heat Transfer to Supercritical Carbon Dioxide [71-HT-24] (*A*) ..... O 62
Flueric Carbon Dioxide Concentration Sensor [70-WA/Flcs-10] (*A*) ..... Je 43
Card, D. C.
Ultrasonic Velocity of Sound and Void Fraction in a Bubbly Mixture [71-FE-26] (*A*) ..... S 52
Cardiology
Analysis and Physiological Monitoring of the Human Left Ventricle [70-WA/BHF-14] (*A*) Ap 63
Evaluation of Cardiac Work by Means of the Thermodilution Technique Employing the Thermocatheter [70-WA/Temp-2] (*A*) ... My 54
Measurement of Sequential Velocity Development in the Aorta [70-WA/BHF-13] (*A*) ..... Ap 63
Remote Heart Monitor (*BTR*) ..... Jl 29
A "Walk Around" the Beating Heart (*BTR*) Jl 28
Caren, R. P.
Radiation Energy Density and Radiation Heat Flux in Small Rectangular Cavities [71-HT-16] (*A*) ..... O 62
Carey, J. H.
High Entrainment Ejector Design [71-FE-34] (*A*) S 52
Cargo Handling
C-5 Galaxy
128-Ton Payload (*PB*) ..... Ja 38
Container Control System (*NB*) ..... O 73
Gas Turbine Propulsion for High Utilization Cargo Ships [71-GT-83] (*A*) ..... Jl 41
LMFBR Fuel Shipping—Containment and Heat Transport [71-NE-6] (*A*) ..... Jl 42
New Cargo Era Unfolding (*BTR*) ..... Ja 32
Carley, Charles T., Jr. elected ASME Region XI Vice-President 1972–1974 ..... N 86
A Numerical Solution for Natural Convection in Cylindrical Annuli [70-WA/HT-9] (*A*) ... Ap 59
Carlson, Gustav A.
Compatibility [*C*] ..... F 77
Carlson, Steven H. receives Arthur L. Williston Medal and Award at 1970 WAM ..... Ja 74
Carlstedt, R. L. deceased ..... Je 80
Carnegie, W.
The Coupled Bending-Bending Vibration of Pre-Twisted Tapered Blading [71-Vibr-78] (*A*) D 52
The Effects of Shear Deformation and Rotary Inertia on the Lateral Frequencies of Cantilever Beams in Bending [71-Vibr-79] (*A*) ..... D 52
Carnegie-Mellon University
Carnegie-Mellon University Alumni Association presents Distinguished Service Award to Frederick S. Bloom ..... D 80
Reducing Oil Spills (*EN*) ..... Jl 58
Carriage-Rail Assembly
Carriage-Rail Assembly for High-Resolution Mechanical Positioning (*NTB*) ..... D 38
Carrier, G. F.
The Response of Narrow-Mouthed Harbors in a Straight Coastline to Periodic Incident Waves [70-WA/APM-46] (*A*) ..... Je 48
Carroll, M. M.
Creep at Constant Stress in Isotropic Solids [71-APM-23] (*A*) ..... S 57
Carruth, S. L.
A Numerical Solution for Natural Convection in Cylindrical Annuli [70-WA/HT-9] (*A*) ... Ap 59
Carson, Gordon B. becomes executive vice-president of Albion College, Albion, Mich. O 89; named a Fellow of AIIE ..... Jl 74
Carson, W. L.
Reduction of Shaking Forces in a Slider Crank Mechanism [70-Mech-73] (*A*) ..... Ja 53
Cartwright, W. G.
Analytical and Experimental Studies of Two-Dimensional Flows in a Radial Bladed Impeller [71-GT-20] (*A*) ..... Jl 36
Casagrande, R. D.
Thermal Control Optimization for Cylindrical Spacecraft [70-WA/Aut-13] (*A*) ..... F 70
Casatelli, H.
Application of a Gas Turbine to Compressed Air Supply Requirements [71-GT-48] (*A*) .... Ag 46
Cascades
The Computation of Transonic Flow Through Two-Dimensional Gas Turbine Cascades [71-GT-89] (*A*) ..... Jl 42
A Design Method and the Performance of Two-Dimensional Turbine Cascades for High Subsonic Flow [71-GT-34] (*A*) ..... Jl 37
An Experimental Study of Rectilinear Jet-Flap Cascades [71-FE-14] (*A*) ..... Ag 55
On Flow Past a Supercavitating Cascade of Cambered Blades [71-FE-6] (*A*) ..... Ag 54
Generalization of Experimental Data for Compressor Cascades at Low Speeds [70-WA/GT-10] (*A*) ..... My 57
A Numerical Technique for the Calculation of Transonic Flows in Turbomachinery Cascades [71-GT-42] (*A*) ..... Jl 33
The Supersonic Turbine—A Design and Cascade Study [71-GT-76] (*A*) ..... Jl 41
Casey, D. F.
Sodium-Heated Modular Steam Generator Design and Development [71-NE-10] (*A*) ..... Jl 43

Casings
Combating Well Casing Corrosion [71-Pet-16] (*A*) D 48
Evaluation of Angle to be Subtended by the Spiral of Semispiral Casings [70-WA/FE-18] (*A*) F 74
Castelli, V.
A Theoretical Investigation of Compliant Surface Journal Bearings [70-Lub-20] (*A*) ..... Ja 44
Castings
See also Copper
Salvaging Surface-Damaged Castings (*NTB*) Ja 35
Castle, C. H.
Manufacturing Approaches to Resin Matrix Composite Airfoils for Gas Turbine Engines [71-GT-47] (*A*) ..... Ag 45
Castle, P.
Visual Observations and Torque Measurements in the Taylor Vortex Regime Between Eccentric Rotating Cylinders [70-Lub-13] (*A*) ..... Ja 43
Catalytic Rich Gas (CRG) Process
SNG Agreement (*OS*) ..... D 44
Catton, I.
Predictions of Momentum Transfer Between Rotating Cylinders: The Narrow Gap Problem [71-APM-30] (*A*) ..... O 58
Caudel, Fred H. deceased ..... Mr 88
Caverhill, J. R.
Gas-Engine Oil Ash and Viscosity Limits—The Supplier's Dilemma [71-DGP-10] (*A*) ..... Ag 49
Cavitation, Cavities
Cavity Resonance in Fractional Horsepower Refrigerant Compressors [71-Vibr-88] (*A*) .. N 54
On Flow Past a Supercavitating Cascade of Cambered Blades [71-FE-6] (*A*) ..... Ag 54
Influences of Size and Configuration on Cavitation in Submerged Orifice Flows [71-FE-39] (*A*) S 53
Linearized Potential Flow Models for Hydrofoils in Supercavitating Flows [71-FE-12] (*A*) .. Ag 55
Measurement of Energy Dissipation in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-4] (*A*) ..... S 55
Nonlinear Effects in the Collapse of a Nearly Spherical Cavity in a Liquid [71-FE-5] (*A*) Ag 54
A Prediction of Water-Entry Cavity Shape [70-WA/FE-8] (*A*) ..... F 72
Radiation Energy Density and Radiation Heat Flux in Small Rectangular Cavities [71-HT-16] (*A*) ..... O 62
Some Results on the Heat Transfer Within Resonant Cavities at Subsonic and Supersonic Mach Numbers [71-FE-9] (*A*) ..... Ag 54
Rigid-Body Approximations to Turbulent Motion in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-Y] (*A*) ..... O 60
The Scattering of Shock Waves by Cylindrical Cavities in Liquids and Solids [70-WA/APM-57] (*A*) ..... Je 49
CEE
See International Commission for Rules for the Approval of Electrical Equipment
Celino, Vincent A.
Development Status of the Water Vapor Electrolysis System [71-Av-24] (*A*) ..... O 57
Cells
Critical Rayleigh Numbers for Natural Convection of Water Confined in Square Cells with L/D from 0.5 to 8 [70-WA/HT-7] (*A*) ..... Ap 59
"Flying Test Cell" Evaluation and Applications [71-GT-77] (*A*) ..... Jl 41
Uniaxial Stretching of the Red-Cell Membrane [70-WA/BHF-12] (*A*) ..... Ap 64
CEMA elects A. F. Larkin, Jr., treasurer; J. M. Shepard, Jr., to board of directors ..... F 101
Cenospheres
Ice Cubes and Champagne (*PB*) ..... O 51
Centrifugal Equipment
Effects of Reynolds Number on Performance Characteristics of a Centrifugal Compressor [71-GT-25] (*A*) ..... Jl 36
New Water Pump (*OS*) ..... Je 39
Optimum Vane Number and Angle of Centrifugal Pumps with Logarithmic Vanes [70-WA/FE-20] (*A*) ..... F 74
Technology for Centrifugal Compressors [70-Pet-24] (*A*) ..... D 49
Ceramics
See also Nozzles
High-Temperature Material (*OS*) ..... Jl 35
Noise Abatement in Industry
Interaction of Sound and Structures
Underwater Behavior of Free-Flooded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
Cerebral Palsy
Students' Machine Aids Cerebral Palsy Victims (*EN*) ..... O 74
CESM
See Continuous Electroslag Melting
CFE
See Controlled Flash Evaporation
C5A
Tip-Top Service (*PB*) ..... S 44, 45
Chace, M. A.
Development and Application of a Generalized d'Alembert Force for Multifreedom Mechanical Systems [70-Mech-25] (*A*) ..... Ja 48
Chaddock, J. B.
Wave Amplitude Study for Two-Phase Flow in a Horizontal Channel [71-FE-2] (*A*) ..... Ag 54
Chadha, J.
Natural Frequency Determination of Long Span Floor Slabs [71-Vibr-8] (*A*) ..... N 48
Chaffee, Paul D. promoted by Combustion Engineering, Inc., to district manager of Combustion Div.'s Birmingham office ..... D 80
Chahroudi, Day
The Design, Performance, and Some Applications of a Non-Electronic Solar Tracker [70-WA/Sol-2] (*A*) ..... F 64
Chains
Gross Motion Classifications of the RCCC Chain [70-Mech-56] (*A*) ..... Ja 51
Link Length Bounds on the Four-Bar Chain [70-Mech-62] (*A*) ..... Ja 52
Overhead Conveyor System (*OS*) ..... S 47
A Relaxation and Gradient Combination Applied to the Computer Simulation of a Plane Four-Bar Chain [70-Mech-20] (*A*) ..... Ja 48
Structural Analysis of Two General Constraint Kinematic Chains and Their Practical Application [70-Mech-37] (*A*) ..... Ja 49
Chait, I. L.
Design of the Supercritical 325-MW Unit Addition to Genoa Station No. 3 [71-Pwr-3] (*A*) .... D 51
Chakraborty, J.
Contact Ratio of Worm Gears [70-Mech-49] (*A*) Ja 51
Chalfen, Melvin B. forms new manufacturers' representative agency, Chalfen & Co., Chicago, Ill., to serve mechanical contractors in the Chicago area ..... S 97
Chambers
Certification for Material Safety of Hyperbaric Facilities [71-PVP-65] (*A*) ..... S 50
Procurement of Safe Viewports for Hyperbaric Chambers [71-PVP-1] (*A*) ..... Ag 49
Safety Certification of a Man-Rated Hyperbaric Facility [71-PVP-63] (*A*) ..... S 50
Standard for Hyperbaric Facilities [71-PVP-58] (*A*) S 50
Ultra-High Vacuum Chamber (*NTB*) ..... My 46
Chambers, Alan B.
Advanced Regenerative Portable Life Support System for Extravehicular Activity [71-Av-10] (*A*) ..... O 55
Champagne, D. L.
Standard Measurement of Aircraft Gas Turbine Engine Exhaust Smoke [71-GT-88] (*A*) .... Jl 42
Chan, C. K.
Infrared Radiation of Thin Plastic Films [70-WA/HT-15] (*A*) ..... Ap 59
Chan, C. S.
Parameter Tuning of Linear DDC Algorithms [70-WA/Aut-16] (*A*) ..... F 70
Chan, J.
An Experimental Investigation of the Enthalpy of Saturated Heavy-Water Liquid [71-HT-M] (*A*) N 59
Chan, S. H.
Infrared Radiation Properties of Sulfur Dioxide [70-WA/HT-4] (*A*) ..... Ap 58
Chan, S. K.
Analysis of Stresses in Pressurized Welded Pipe in the Creep Range [71-PVP-66] (*A*) ..... S 50
Chandrashekhara, K. C.
Stresses in a Pressurized Ribbed Cylindrical Shell with a Reinforced Circular Hole Interrupting a Rib [71-PVP-8] (*A*) ..... Ap 51
Chang, A.
An Improved Finite Difference Method Applied to Thin Shells [71-PVP-24] (*A*) ..... Ag 52
Chang, J. D.
Aircraft Gas Turbine Condition Analysis Instrumentation: Its Use for the Status Diagnosis of Naval Turbine Engines [71-GT-86] (*A*) .... Jl 41
Chang, P. Y.
Avoiding Iterative Searches to Find Critical Speeds of Rotating Shafts with the Transfer Matrix Method [71-Vibr-53] (*A*) ..... N 52
Channels
Boiling-Flow Instabilities in a Cross-Connected Parallel-Channel Upflow System [71-HT-12] (*A*) O 61
The Channel Flow of a Density-Stratified Fluid About Immersed Bodies [71-FE-23] (*A*) .... S 52
Entrance Development of the Weakly Interacted MHD Plane Channel Flow as Affected by Wall Conductances [71-APM-A] (*A*) ..... O 59
Flow Development in a Channel Having a Longitudinally Moving Wall [70-WA/APM-11] (*A*) My 58
Hydro-Rotational Stability of a Slender Plate in a Rectangular Flow Channel [71-Vibr-37] (*A*) N 51
Nonuniform Flow in the Inlet Section of a Straight Channel [70-WA/FE-27] (*A*) ..... F 74
Sectionalized Compressible and Momentum Integral Models for Channel Hydrodynamics [71-HT-14] (*A*) ..... O 61
Slow Particulate Viscous Flow in Channels and Tubes—Application to Biomechanics [71-APM-R] (*A*) ..... O 59
Study of the Onset of Premature Heat-Transfer Crisis During Hydrodynamic Instability in a Full-Scale Reactor Channel [71-HT-11] (*A*) O 61
Wave Amplitude Study for Two-Phase Flow in a Horizontal Channel [71-FE-2] (*A*) ..... Ag 54
Chant, R. E.
Ultrasonic Velocity of Sound and Void Fraction in a Bubbly Mixture [71-FE-26] (*A*) ..... S 52
Chapman, R. B.
Nonlinear Effects in the Collapse of a Nearly Spherical Cavity in a Liquid [71-FE-5] (*A*) Ag 54
Thermal Effects in the Free Oscillation of Gas Bubbles [70-WA/FE-11] (*A*) ..... F 72
Chapman, W. D.
Control of Machines by Conversational Speech [71-DE-7] (*A*) ..... Jl 45
Chaput, A. J. deceased ..... D 83
Charging
Imaginative Imaging (*BTR*) ..... Ag 35
Charpy-V Testing
A Reassessment of Fracture-Safe Operating Criteria for Reactor Vessel Steels Based on Charpy-V Performance [70-WA/Met-1] (*A*) ..... My 52
Chatterjee, A. B.
Modification of Drill Point for Reducing Thrust [71-Prod-12] (*A*) ..... Jl 49
Chawla, T. C.
Velocity Distribution in the Liquid Film During Draining on a Cylindrical Surface [71-APM-J] (*A*) ..... O 60
Cheers, R. F.
Design of Pressure Vessels for Optimized Cost [70-WA/PVP-4] (*A*) ..... F 76
Chemical Industry
Chemical Industry [1971 outlook] (*NR*) ..... F 89
Fluorocarbon Turbine (*OS*) ..... Ja 40
Seventeen Years Operating Experience with Gas Turbines in a Petrochemical Plant [71-GT-80] (*A*) ..... Jl 41
Chemistry
Chemical Nonequilibrium in Supersonic Nozzle Flow [71-FE-8] (*A*) ..... Ag 54
Utilities Planning for a New Industrial Chemical Complex [71-IPwr-7] (*A*) ..... S 54
Chen, C. F.
The Channel Flow of a Density-Stratified Fluid About Immersed Bodies [71-FE-23] (*A*) .... S 52
Chen, C. H.
Stress Distribution of a Cylindrical Shell Nonradially Attached to a Spherical Pressure Vessel [71-PVP-42] (*A*) ..... S 48
Chen, C. H.
Vibration and Dynamic Stability of an Axially Moving Belt [71-Vibr-31] (*A*) ..... N 50
Chen, C. S.
An Interferometric Technique for Temperature and Concentration Measurement for an Air-Water Interface [70-WA/Temp-1] (*A*) ..... My 54
Chen, Fan Y.
Dimensional Synthesis of the Spherical Double-Rocker Mechanism [70-Mech-81] (*A*) ..... Ja 54
On Kinematic and Force Analysis of Peaucellier's Linkage [70-Mech-47] (*A*) ..... Ja 51
On the Realizability of Permutational Synthesis of Mechanisms [70-Mech-58] (*A*) ..... Ja 51
Chen, S. S.
Flow-Induced Instability of an Elastic Tube [71-Vibr-39] (*A*) ..... N 51
Chen, S. S. H.
Large Amplitude Vibration of a Circular Plate with Concentric Rigid Mass [71-APMW-11] (*A*) N 55
Chen, T. N.
Combustion Characteristics of Large Gas Engines [71-DGP-6] (*A*) ..... Ag 48
Chen, W.
Stress Concentration Around a Hyperboloidal Notch Under Tension in a Transversely Isotropic Material [70-WA/APM-24] (*A*) ..... My 59
Chen, Wai-Kai
On the Realizability of Permutational Synthesis of Mechanisms [70-Mech-58] (*A*) ..... Ja 51
Chen, Y. N.
Web-Stiffened Sandwich Structures [71-APM-8] (*A*) ..... S 55

Chen, Yian-Nian
Fluctuating Lift Forces of the Karman Vortex Streets on Single Circular Cylinders and in Tube Bundles
Part 1: The Vortex Street Geometry of the Single Circular Cylinder [71-Vibr-11] (*A*).....N 49
Part 2: Lift Forces of Single Cylinders [71-Vibr-12] (*A*).....N 49
Part 3: Lift Forces in Tube Bundles [71-Vibr-13] (*A*).....N 48

Cheng, C.
Nonlinear Response of Gas-Lubricated Shrouded Rayleigh-Step Thrust Pad [71-Vibr-75] (*A*) D 52

Cheng, H. S.
Nonlinear Response of Gas-Lubricated Shrouded Rayleigh-Step Thrust Pad [71-Vibr-75] (*A*) D 52

Cheng, K. C.
Experiments on the Onset of Longitudinal Vortices in Laminar Forced Convection Between Horizontal Plates [71-HT-1] (*A*).....O 60

Cheng, R. M. H.
A Computer-Aided Design Method Specially Applicable to Fluidic-Pneumatic Sequential Control Circuits [70-WA/Flcs-17] (*A*).....Je 44

Cherbas, T. deceased.....Ag 87

Chi, H. W.
Free Convection Through Vertical Plane Layers of Non-Newtonian Power Law Fluids [70-WA/HT-1 (*A*).....Ap 58

Chia, W. S.
Development and Application of Mechanically Enhanced Heat-Transfer Surfaces [71-HT-40] (*A*).....N 58

Chiang, C. H.
A Direct Method for Analyzing Accelerations in Complex Mechanisms [71-APM-X] (*A*)....O 60

Chiang, D. C.
Large Amplitude Vibration of a Circular Plate with Concentric Rigid Mass [71-APMW-11] (*A*) N 55

Chiarulli, Peter elected Fellow ASME F 104; participates, in Atlanta, Ga., in a meeting of the steering committee, Kabul Afghan-American Program sponsored through the Agency for International Development to aid development of the faculty of engineering, University of Kabul, Afghanistan.....Ap 86

Chicago
Chicago Transportation Grants (*NB*).....N 72

Chick, J. A. deceased.....D 83

Chieh, L. C. deceased.....N 93

Childs, D. W.
A Simulation Model for Flexible Rotating Equipment [71-Vibr-71] (*A*).....N 54

Chilton, Ernest G.
Engineering a Better Environment
2: High-Speed Interurban Transportation Systems
Fast Transit Link [based on 69-WA/PID-11] Fast Transit Link (*C*) (*AC*).....Mr 66

Chimneys
The Use of Flow Modeling Techniques to Obtain a Minimum Loss Design for the Stack Entrance Section of a 700-ft Power Plant Chimney [70-WA/Pwr-1] (*A*).....My 55

Chinitz, M. P.
The Autotape/Autocheck System [71-Vibr-61] (*A*) N 53

Chip, Chipping
Some Effects of Injecting Cutting Fluids Directly into the Chip-Tool Interface [70-WA/Prod-2] (*A*) Mr 59
On the Fundamental Mechanism of Large Strain Plastic Deformation, Electron Microscopy of Metal Cutting Chips [70-WA/Prod-11] (*A*) Mr 60
Plastic Flow at the Chip-Tool Interface During Hot Machining [70-WA/Prod-1] (*A*).....Mr 59

Chiu, P. C.
Frequency Response of Pool Boiling Plants [71-HT-A] (*A*).....N 58

Chiu, Y. P.
Bounds on the Maximum Contact Stress of an Indented Elastic Layer [71-APM-E] (*A*)...O 60

Chloride
The Role of Chloride in the Corrosion Caused by Flue Gases and Their Deposits [70-WA/CD-1] (*A*).....Ap 64

Cho, S. M.
Performance Changes of a Sodium-Heated Steam Generator [71-HT-15] (*A*).....O 62

Choi, C. Y.
Strain Histories and Strain Distributions in a Cup Drawing Operation [70-WA/Prod-6] (*A*)..Mr 59

Chou, Ping H.
Dimensional Synthesis of the Spherical Double-Rocker Mechanism [70-Mech-81] (*A*).....Ja 54

Chow, W. L.
On the Correlation of Analytical and Experimental Free Shear Layer Similarity Profiles by Spread Rate Parameters [70-WA/FE-12] (*A*).....F 72
Low-Speed Slip Flow over a Wedge [70-WA/APM-26] (*A*).....My 59

Christensen, H.
The Hydrodynamic Lubrication of Rough Bearing Surfaces of Finite Width [70-Lub-7] (*A*)..Ja 42

Christiansen, Robert L. appointed product manager—industrial bearings by Bearing Div. of Rex Chainbelt Inc., Downers Grove, Ill.....F 101

Christianson, M.
Circumferential Traversing Technique for Intra-Stage Analysis of Axial Flow Compressors [71-FE-33] (*A*).....S 53

Chromium
New Chromium-Plating Process (*OS*).....Ag 43
12 percent Chromium Steel Disks for Industrial Gas Turbines [71-GT-39] (*A*).....Jl 38

Chromosomes
The Computer and the Chromosome (*BTR*) Mr 45

Chu, S. L.
Hydraulically Damped Motion of Gondola Cars [70-WA/RR-4] (*A*).....Je 42

Chun, K. R.
Heat Transfer to Evaporating Liquid Films [71-HT-H] (*A*).....N 59

CIMAC
See International Congress on Combustion Engineers

Cinadr, F. A.
A Mathematical Programming Approach to the Design of a Transmission [71-DE-16] (*A*)..Jl 46

Circles
See also Cycloids
The Effect of Pulse Shape on the Dynamic Plastic Deformation of Reinforced Circular Cylindrical Shells [71-PVP-31] (*A*).....Ag 53
Flow in Rotating Straight Pipes of Circular Cross Section [70-WA/FE-13] (*A*).....F 73
Large Sideward Deflections of Two-Hinged Circular Arches [71-DE-E] (*A*).....Jl 48
Potential Flow Past a Group of Circular Cylinders [71-FE-18] (*A*).....S 53
Propagation of Longitudinal Waves in Circularly Cylindrical Bone Elements [71-APM-5] (*A*) S 55
On the Smallest Circle Determined by Three Positions of a Rigid Body [70-Mech-11] (*A*) Ja 47
Stress Concentration in a Cylindrical Shell Containing a Circular Hole [71-PVP-9] (*A*)...Ag 50
Stresses in a Pressurized Ribbed Cylindrical Shell with a Reinforced Circular Hole Interrupting a Rib [71-PVP-8] (*A*).....Ag 51
Thermal Buckling and Snapping of a Circular Ring [71-DE-B] (*A*).....Jl 48
Thermal Stresses in Thick-Walled Circular Cylinders Under Axisymmetric Temperature Distribution [71-PVP-16] (*A*).....Ag 51

Circuitry
A Computer-Aided Design Method Specially Applicable to Fluidic-Pneumatic Sequential Control Circuits [70-WA/Flcs-17] (*A*).....Je 44
"Rolling Wave" Micro Switch (*BTR*).....D 36

Circulation Patterns
Mathematical and Experimental Modeling of the Circulation Patterns in Glass Melts [70-WA/HT-11] (*A*).....Ap 59

Cisler, Walker Detroit Edison Co. names new headquarters building in honor of ASME Past President Walker Cisler.....My 88

Citizenship
As the President Sees It
The Modern Citizen Engineer.....N 94

Civic Service
As the President Sees It
The Modern Citizen Engineer.....N 94
Williston Medal Contest Papers of 1971
Civic Service: Young Engineers Set Forth Bold Views.....Ag 31
Winner:
JAMES A. WILLMS
To Be a Good Citizen (*A*).....Ag 32
Runnerup:
ADNAN AKAY
What Can an Engineer Do? (*A*).....Ag 32
P. H. BARRETT
Right Man—Wrong Job (*A*).....Ag 32
DANIEL T. DALEY
The Image of an Engineer (*A*).....Ag 33
THOMAS KELCEC
Engineering, Ethics, and the Environment (*A*) Ag 33
HORST KLEIN
The Responsibilities of the Engineer to the Craftsman (*A*).....Ag 33
RALPH F. NELSON, JR.
Engineering: A Hope for the Future or a Relic of the Past (*A*).....Ag 33

Civil Engineering
World Trade Center Wins Award as "Outstanding Civil Engineering Achievement for 1971" (*NB*) Je 39

Clark, L. T.
The Radiation of Sound from an Airfoil Immersed in a Laminar Flow [71-GT-4] (*A*) Ag 44

Clark, S. K.
A Modified Linear Membrane Theory for the Pressurized Toroid [70-WA/APM-49] (*A*) Je 48

Clark, W. G., Jr.
Fracture Mechanics and Nondestructive Testing of Brittle Materials [71-PVP-4] (*A*).....Ag 50

Clark, William H. D. deceased.....F 106

Clarke, James S. elected Fellow ASME...Jl 76

Clearances
Dynamic Analysis of Mechanical Systems with Clearances
Part 1: Formation of Dynamic Model [70-Mech-64] (*A*).....Ja 53
Part 2: Dynamic Response [70-Mech-65] (*A*) Ja 53

Clement, Richard W. elected Fellow ASME My 89

Clevenger, W.
Gas Turbine Blade Heat Transfer Augmentation by Impingement of Air Jets Having Various Configurations [71-GT-9] (*A*).....Ag 44

Climate Control
Apartment Air Conditioning (*NB*).....Ap 72

Cline, R. F.
Technology for Centrifugal Compressors [71-Pet-34] (*A*).....D 49

Clinedinst, Wendel W. elected Fellow ASME N 90

Clomburg, L. A.
Mathematical and Experimental Modeling of the Circulation Patterns in Glass Melts [70-WA/HT-11] (*A*).....Ap 59

Closures
Burst-Strength Analysis of Finite-Length, Specially Orthotropic Cylinders with Different End Closures [71-PVP-21] (*A*).....Ag 52
Self-Sealing Closure (*NTB*).....O 44

Cloth
Cut by the "Light Fantastic" (*BTR*).....Je 38

Clothing
Heat-Resistant Garments (*NTB*).....Jl 30

Clough, R. W.
Stress Analysis of B16.9 Tees by the Finite Element Method: A Progress Report [71-PVP-40] (*A*).....Ag 53

Clough, W. R.
Experimental Fabrications of a High Strength, Low Alloy Steel by Means of Last Pass Temperature Control [71-Met-1] (*A*).....Ag 47
Investigations of the Substitution of Isothermal Fabrication Programs for Last Pass Temperature Control Programs [71-Met-2] (*A*)....Ag 48

CNG
See Compressed Natural Gas

Coal
Cleaner Fuels from Coal (*NB*).....D 66
Coal [1971 outlook] (*NB*).....F 88
Coal Gasification (*NB*).....N 68
Coal Mining in an Oxygen-Free Atmosphere [70-WA/PID-4] (*A*).....Mr 63
Common Market May Double American Coal Purchases by '80 (*NB*).....O 71
Converting Coal to Gas (*NB*).....Mr 73
Corrosion of Heat-Exchange Tubes in a Simulated Coal-Fired MHD System [70-WA/CD-3] (*A*) Ap 64
Domestic Coal (*NB*).....D 67
Dominant Mechanisms in the Combustion of Coal [70-WA/Fu-2] (*A*).....F 75
Fuel Availability—Coal Is Topic for Pittsburgh Section of ASME.....Ap 79
Gas from Coal Essential (*NB*).....N 68
New Fuels—Old Coal [71-Pet-15] (*A*).....D 48
NO_x Emissions at Low Excess-Air Levels in Pulverized-Coal Combustion [70-WA/APC-3] (*A*).....F 68
Surface Mined Coal (*NB*).....D 67
Surface Mining (*NB*).....N 68

Coatings
See also Manned Space Station
Anti-Fog Coating (*NTB*).....O 44
"Cold" Coating Process (*BTR*).....Ap 44
Mono-Kote IV (*BTR*).....S 37
The Separation of Membrane and Bending Shears in Shell with Two Birefringement Coatings [70-WA/APM-38] (*A*).....Je 46
Using Viscoelastic Coatings to Reduce Structure-Borne Noise into a Fluid [71-Vibr-39] (*A*) N 50

Cockrell, Clifford M. elected Fellow ASME Jl 76

Codes and Standards
See also Specifications
AGMA Standards as Engineering Tools for the

Codes and Standards (*Continued*)
Rating, Design, Production, and Inspection of Gearing [71-DE-14] (*A*) ..... Jl 46
Air Quality Standards Restrictive (*NB*) ..... O 72
Analysis of Changes in the Performance Characteristics of Steam Turbines [70-WA/PTC-1] (*A*) ..... My 52
ANSI Committee N43
Meeting ..... Jl 54
Withdraws Handbook 66 (Safe Design and Use of Industrial Beta-Ray Sources) as of March 9 ..... S 85
As the President Sees It
Codes and Standards ..... D 84
ASME Panel Examines Progress and Current Needs in Gas Turbine Codes and Standards ..... Ap 77
ASME Performance Test Codes
Committee PTC-2 on Definitions and Values Report on Proposed Code of Definitions and Values [70-WA/PTC-2] (*A*) ..... My 52
PTC 22
For Gas Turbines: New Standard Rating Point ..... O 34
ASME publishes Supplement to APS-2: Guide for the Control of Emission of Oxides of Sulfur Combustion for Indirect Heat Exchangers ..... N 83
Boiler and Pressure Vessel Code of ASME
Interpretations ..... Ja 59; My 69; Ag 58; S 62; D 59
1971 Code Available ..... Mr 81; My 63
Proposed Revisions and Addenda ..... Ja 60; My 70; Ag 59; S 63; D 60
Section III, 1971 edition, becomes Reference Code for Draft Code for Nuclear Pumps and Valves ..... S 90
Metrication (*C*) ..... S 58
Metrication (*C*) ..... D 56
Mexican Boiler Code Activities Expand Scope (*NR*) ..... N 67
New ANSI B94 Standards (Die Buttons) Published by ASME ..... My 69
New Sources Listed for EPA Air Standards (*NB*) ..... Je 58
1970 Standards Catalog Offered Free by ANSI (*TL*) ..... Mr 77
1971 ANSI Standards Catalog ..... O 77
Nuclear Code Class, Safety Class and Quality Administration: How They Tie Together [71-PVP-56] (*A*) ..... S 48
Operational Logistics in an Air Pollution Monitoring Network [70-WA/PTC-3] (*A*) ..... My 52
Performance Test Code
1971 Addendum, General Instructions, PTC1-1970, Date of Issue, Oct. 1971 ..... D 59
Pressure Piping Code of ASME
Interpretations ..... F 80; Je 54; Jl 54; Ag 58; S 61; D 59
Proposed Addendum to B31.7-1969 Nuclear Power Piping Code ..... My 69
Proposed A17 Code Section for Lifts with Automatic Transfer Devices ..... Ap 82
Proposed Revision to ANSI B31.3-1966 Petroleum Refinery Piping Code ..... S 61
Standard for Hyperbaric Facilities [71-PVP-58] (*A*) ..... S 50
Standard Measurement of Aircraft Gas Turbine Engine Exhaust Smoke [71-GT-88] (*A*) ..... Jl 42
Temperature and Humidity Environments
Thermal Effects in Precision Machining [based on 70-WA/Prod-25] ..... Jl 11
Thermal Effects in Precision Machining [70-WA/Prod-25] (*A*) ..... Mr 62
Tire Safety Standards (*NB*) ..... O 73
Tracer Tests for Nuclear Power Plant Steam Turbines (based on 69-WA/PTC-3) ..... Ja 15
Cody, Joseph C.
Space Station Life Support System Definition [71-Av-13] (*A*) ..... O 55
Cognates
Coupler Cognates of Eight-Link Mechanisms
Part 1—With Ternary and Quaternary Links [70-Mech-66] (*A*) ..... Ja 52
Part 2—With Ternary Links and Double Joints [70-Mech-67] (*A*) ..... Ja 52
Cohen, H. deceased ..... Je 80
Cohen, Raymond named director of Ray W. Herrick Laboratories at Purdue University S 97; named to editorial board of Journal of Sound and Vibration, official publication of the British Acoustical Society, as machine noise and vibration specialist ..... N 89
Multi-Parameter Optimization of Damped Linear Continuous Systems [71-Vibr-1] (*A*) ..... N 48
Cohen, S. E.
The Design and Application of the Traversing Infrared Inspection System (TIRIS) [71-DE-37] (*A*) ..... Ag 46
Coils
Stress Analysis of High Temperature Pyrolysis Heater Coil Systems Subjected to Creep and Low Cycle Fatigue [71-Pet-17] (*A*) ..... D 49
Coleman, F. A. deceased ..... N 93
Collapse
Experimental Determinations of Plastic Collapse Loads for Pipe Elbows [71-PVP-37] (*A*) ..... Ag 53
The Influence of Residual Stresses on the Collapse Pressure of Cold Pressed Spherical Shells [70-WA/UnT-1] (*A*) ..... Je 45
Nonlinear Effects in the Collapse of a Nearly Spherical Cavity in a Liquid [71-FE-5] (*A*) ..... Ag 54
Collectors
Sea Brooms (*BTR*) ..... O 46
Collins, D. B.
Study of the Onset of Premature Heat-Transfer Crisis During Hydrodynamic Instability in a Full-Scale Reactor Channel [71-HT-11] (*A*) ..... O 61
Collisions
Contract for Improved Crashworthiness (*NB*) ..... N 69
Crash Tests (*NB*) ..... N 69
A Thermal Elastohydrodynamic Theory for Individual Asperity-Asperity Collisions [70-Lub-25] (*A*) ..... Ja 45
To Reduce Midair Collisions (*NB*) ..... N 68
Collman, John S. named head of newly created Gas Turbine Research Department at General Motors Research Laboratories, Warren, Mich. ..... D 80
Colloids
Computed Performance Characteristics of Electrofluid Dynamic Colloid Generators [70-WA/Ener-5] (*A*) ..... Ap 61
Colombia
Synthetic Fiber Industry (*OS*) ..... Ap 52
Colombo, G. V.
Water Management Results for a 90-Day Space Station Simulator Test [71-Av-6] (*A*) ..... O 55
Colorado
Division of Highways
Denver Mass Transit Plan (*NB*) ..... Ag 67
Columbia University School of Engineering and Applied Science at Columbia University awards Thomas Egleston Medal to Raymond D. Mindlin ..... S 97
Columns
Dynamic Instability of a Cantilever Column Subjected to a Follower Force Including Thermomechanical Coupling Effect [71-APM-L] (*A*) ..... O 60
Response Bounds for Columns with Transient Loads [70-WA/APM-32] (*A*) ..... Je 47
Combustion, Combustors
Combustion Characteristics of Large Gas Engines [71-DGP-6] (*A*) ..... Ag 48
Combustion Noise and Its Control in Process Plant Furnaces [71-Pet-6] (*A*) ..... D 47
The Combustion of Heavy Distillate Fuels in Heavy Duty Gas Turbines [71-GT-56] (*A*) ..... Jl 39
Combustion Safety in Industrial Boilers [71-IPwr-3] (*A*) ..... S 53
A Computer Simulation of Scavenging and Combustion in a Loop-Scavenged, Two-Cycle Natural Gas Engine [71-DGP-9] (*A*) ..... Ag 49
A Criterion for the Combustion Modes in Constant Area Combustors [70-WA/Av-4] (*A*) ..... F 68
Dominant Mechanisms in the Combustion of Coal [70-WA/Fu-2] (*A*) ..... F 75
A Dynamic Model of Gas Turbine Engine Main Combustor Instability [71-GT-73] (*A*) ..... Jl 40
EDM-Machined Combustion Chamber (*BTR*) ..... Jl 26
An Experimental Study of Coolant Combustion Effects in Transpiration Cooling [71-GT-72] (*A*) ..... Jl 40
The Interaction of Air Motion, Fuel Spray, and Combustion in the Diesel Combustion Process [71-DGP-2] (*A*) ..... Ag 48
New Industrial Burner (*BTR*) ..... Je 32
NO_x Emissions at Low Excess-Air Levels in Pulverised-Coal Combustion [70-WA/APC-3] (*A*) ..... F 68
Noise Abatement in Industry
Engine Combustion and Noise
The Influence of Turbulence and Compounding on Unburned Hydrocarbons and Nitric Oxide in the Combustion Products from Internal Combustion Engines [70-WA/DGP-2] (*A*) ..... Ag 57
Mechanical Aspects of Gear-Induced Noise in Complete Power Train Systems [70-WA/DGP-1] (*A*) ..... Ap 57
Origins of Reciprocating Engine Noise—Its Characteristics, Prediction, and Control [70-WA/DGP-3] (*A*) ..... Ap 58
Sensor for the Control of Vehicular Gas Turbine Combustor [70-WA/Pwr-2] (*A*) ..... My 54
A Survey of Nitrogen-Oxides Control Technology and the Development of a Low NO_x Emissions Combustor [70-WA/Pwr-2] (*A*) ..... My 54
Common Market
Common Market May Double American Coal Purchases by '80 ..... O 71
Communication
Blurred by Computer (*PB*) ..... Je 36
Conference on Data Communication and Business Strategy Stresses Change—Action Called for Now (*NR*) ..... D 65
Electronic Super Guard (*BTR*) ..... N 40
A Gigabit per Second (*BTR*) ..... F 48
Looks Impossible (*PB*) ..... F 60
Students' Machine Aids Cerebral Palsy Victims (*EN*) ..... O 74
"Talking" Computer (*BTR*) ..... Ap 49
Compaction
Hot Isostatic Processing [based on 70-PVP-2] F 33
Compactors
Dynamic Characteristics of a Vibrating Plate Compactor [71-Vibr-18] (*A*) ..... N 49
Comparin, R. A.
Flow and Pressure Recovery in Wall-Attachment Fluid Amplifiers [70-WA/Flcs-9] (*A*) ..... Je 43
Comparison Methods
A Strain Energy Comparison of Discrete Modeling for Vibrating Continuous Systems [71-Vibr-5] (*A*) ..... N 48
Compass Link
Advanced Image Handling (*BTR*) ..... Jl 29
Composites
Advanced Composites Efforts—A Status Report of Air Force Programs with Graphite Reinforced Composites [71-DE-13] (*A*) ..... Jl 46
An Analysis Technique for Composite Structures Subject to Dynamic Loads [70-WA/APM-23] (*A*) ..... My 59
Carbon Composite Technology ..... F 21
Design and Development of a Boron-Glass-Epoxy Lightweight Composite Gear Case [71-GT-85] (*A*) ..... Jl 41
Developing Composites for Torsional Damper-Spring Systems [71-DE-31] (*A*) ..... Jl 47
Development of Borsic-Aluminum Composite Fan Blades for Supersonic Turbofan Engines [71-GT-90] (*A*) ..... Jl 42
The Effect of Composite on the Stress-Rupture Properties of Fully Austenitic Stainless Steel Welds [71-PVP-64] (*A*) ..... S 50
An Experimental Study of Dispersion of Stress Waves in a Fiber-Reinforced Composite [71-APM-27] (*A*) ..... S 57
Hard Tissue as a Composite Material
Part 1: Bounds on the Elastic Behavior [70-WA/BHF-3] (*A*) ..... Ap 62
Initial Yield Surface of a Unidirectionally Reinforced Composite [71-APMW-19] (*A*) ..... N 56
Joining Techniques for Fabrication of Composite Air-Cooled Turbine Blades and Vanes [71-GT-32] (*A*) ..... Jl 37
Manufacturing Approaches to Resin Matrix Composite Airfoils for Gas Turbine Engines [71-GT-47] (*A*) ..... Ag 45
Metal Matrix Composite Fabrication Procedures for Gas Turbine Engine Blades [71-GT-46] (*A*) ..... Jl 38
Microstructure Theory for a Composite Beam [71-APM-S] (*A*) ..... O 59
Nondestructive Sonic Testing of Adhesive-Bonded Composites (*NTB*) ..... Jl 30
Plane Deformations of Incompressible Fiber-Reinforced Materials [71-APM-V] (*A*) ..... O 60
Stress Analysis of Composite Structures [71-DE-2] (*A*) ..... Jl 44
Thermally Induced Stress Waves in a Laminated Composite [71-APM-28] (*A*) ..... O 58
Variational Methods for Dispersion Relations and Elastic Properties of Composite Materials [71-APMW-21] (*A*) ..... N 56
Compounds, Compounding
Noise Abatement in Industry
Engine Combustion and Noise
The Influence of Turbulence and Compounding on Unburned Hydrocarbons and Nitric Oxide in the Combustion Products from Internal Combustion Engines [70-WA/DGP-2] (*A*) ..... Ap 57
Compressed Natural Gas (CNG)
Combatting Pollution (*NB*) ..... Mr 73
Compressibility, Compression, Compressors
Aerodynamic Development of a Radial Compressor for a 10-kw Turboalternator [70-WA/GT-7] (*A*) ..... My 56
Application and Operation of a 3000-hp Turbo-Compressor Unit [71-GT-23] (*A*) ..... Ag 45
Application of a Gas Turbine to Compressed Air Supply Requirements [71-GT-48] (*A*) ..... Ag 46
Asymptotic Formulas for the Buckling Stresses of Axially Compressed Cylinders with Localized or Random Axisymmetric Imperfections [71-APM-29] (*A*) ..... S 57
Axisymmetric Postbuckling and Nonsymmetric Buckling of a Spherical Shell Compressed Between Rigid Plates [71-APMW-7] (*A*) ..... N 55

Compressibility (*Continued*)
Basic Geometric Methods in Helical Lobe Compressor Design [70-WA/FE-23] (*A*) ..... F 74
Cavity Resonance in Fractional Horsepower Refrigerant Compressors [71-Vibr-88] (*A*) .. N 54
Circumferential Traversing Technique for Intra-Stage Analysis of Axial Flow Compressors [71-FE-33] (*A*) ..... S 53
Compression Springs for Vibration Isolation (*NTB*) Ap 46
Effects of Reynolds Number on Performance Characteristics of a Centrifugal Compressor [71-GT-25] (*A*) ..... Jl 36
Effects of Tension-Compression Cycling on Fatigue Crack Growth in High Strength Alloys [71-PVP-2] (*A*) ..... Ag 49
Factors Affecting Design and Reliability of High Performance Gears in Process Compressor Trains [71-Pet-30] (*A*) ..... D 50
The Free Plastic Compression of Pure Metals [70-WA/APM-10] (*A*) ..... My 58
Gas Piping Design for High Speed Reciprocating Compressor Units [71-Pet-3] (*A*) ..... D 47
Gas Turbines for Pipeline Compressor Drives in North America and Europe [71-GT-35] (*A*) Jl 38
Generalization of Experimental Data for Compressor Cascades at Low Speeds [70-WA/GT-10] (*A*) ..... My 57
A Linear Compressibility Assumption for the Multiple Integral Representation of Nonlinear Creep of Polyurethane [70-WA/APM-6] (*A*) My 57
Meeting Europe's Low Noise Requirements for Compressor Stations [71-GT-87] (*A*) ..... Jl 41
Minor Details Influence Useful Life of Packaged Reciprocating Compressor Unit [71-Pet-41] (*A*) D 51
A New Method for the Calculations of Blade Loadings in a Radial Flow Compressor [71-GT-60] (*A*) ..... Jl 39
Noise Abatement in Industry
Gas Turbine Noise Abatement
Some Results of Fan/Compressor Noise Research [70-WA/GT-12] (*A*) ..... Ap 56
Noise Study of Fractional Horsepower, Rotary Vane, Refrigerant Compressor [71-Vibr-89] (*A*) N 54
Performance of Compressor Blade Rows in a Sloping Flowpath [71-GT-13] (*A*) ..... Jl 36
Radial Stress Release Phenomena in Plate Impact Experiments: Compression—Release [71-APMW-16] (*A*) ..... N 56
Requirements of Packaged Gas Compressor Units [71-Pet-4] (*A*) ..... D 47
Resistance of Some Standard Compressor Materials to Hydrogen Sulfide Stress-Corrosion Cracking [71-Pet-25](*A*) ..... D 50
Sectionalized Compressible and Momentum Integral Models for Channel Hydrodynamics [71-HT-14] (*A*) ..... O 61
Selecting the Economic Driver System for Large Compressors [71-Pet-32] (*A*) ..... D 50
Shock Wave Behavior in Transonic Compressor Noise Generation [71-GT-7] (*A*) ..... Ag 44
The Story of a Synthesis Gas Compressor Failure [71-Pet-31] (*A*) ..... D 50
Technology for Centrifugal Compressors [71-Pet-24] (*A*) ..... D 49
Transformation of Compressible Turbulent and Laminar Boundary Layers with and without Wall Blowing [71-FE-37] (*A*) ..... S 53
Computer-Aided Functions
Automatic Planning of Optimal Metal-Cutting Operations and Its Effect on Machine-Tool Design [70-WA/Prod-14] (*A*) ..... Mr 60
Boon for Management: Computerized Die Design S 21
Checking Muffler Noise Levels (*OS*) ..... Ag 43
A Computer-Aided Design Method Specially Applicable to Fluidic-Pneumatic Sequential Control Circuits [70-WA/Flcs-17] (*A*) ..... Je 44
Computer Aided Mathematical Analysis of Fluid Power Systems [71-DE-29] (*A*) ..... Jl 47
Computer-Aided Methods to Relate Analytical and Graphical Design of Mechanisms [70-Mech-77] (*A*) ..... Ja 53
Computer-Aided Study of Journal Bearing Performance Under Cyclic Loads:
Part I—Theory [71-Vibr-86] (*A*) ..... N 54
Part II—Applications [71-Vibr-87] (*A*) .... N 54
A Computer Algorithm to Design Compound Gear Trains for Arbitrary Ratio [70-Mech-31] (*A*) ..... Ja 49
Computer Analysis of a Railroad Freight Car Bolster Utilizing the Finite Element Method [70-WA/RR-7] (*A*) ..... Je 42
Design of Four-Bar Linkages Using Interactive Computer Graphics and Synthesis Curves [70-Mech-45] (*A*) ..... Ja 50
Design Optimization Using Computer Techniques [based on 70-DE-41] ..... Ja 22
IMP (Integrated Mechanisms Program), A Computer-Aided Design Analysis System for Mechanisms and Linkage [71-Vibr-80] (*A*) ..... D 52
Modeling Liquid Pipelines in Transient and Steady State (A Method for Digital Computers) [71-Pet-37] (*A*) ..... D 50
Numerical and Computer Methods in Structural Mechanics International Symposium, 1971 Preview ..... Jl 70
Optimization of Multistage Machining System: Analysis of Optimal Machining Conditions for the Flow-Type Machining System [70-WA/Prod-15] (*A*) ..... Mr 61
Performance Evaluation of a 2.1-MW Gas Turbine Generator Set Using Computerized Data Acquisition [71-GT-36] (*A*) ..... Jl 38
Stereoscopic Drawings Made by Analog Computer of Three Dimensional Surfaces Generated by Spatial Mechanism [70-Mech-38] (*A*) ..... Ja 49
A "Walk Around" the Beating Heart (*BTR*) Jl 28
Computer Industry
Computers [1971 outlook] (*NR*) ..... F 89
Computer Systems
See also Automation
"Adaptive Architecture" (*BTR*) ..... F 54
Blurred by Computer (*PB*) ..... Je 36
The Computer and the Chromosome (*BTR*) Mr 45
The Computer as a Design Tool [71-DE-43] (*A*) Ag 47
Computer Braille (*BTR*) ..... Ag 38
Computer Braille (*C*) ..... O 66
Computer Programs Exchange (*NB*) ..... O 73
Computing Networks (*NB*) ..... D 66
A Handful of Computer (*BTR*) ..... Ap 48
New Process Control Computer (*BTR*) ..... Mr 49
Pollution Control, Product Safety, Small Computers, "Intelligent" Machines, Superplastic Alloys Featured at ASME Design Engineering Conference, 1971 ..... Je 70
Science-Oriented Computer (*BTR*) ..... Je 29
"Talking" Computer (*BTR*) ..... Ap 49
Use of Computers to Aid Corrective Forming of Complex Shapes [71-Prod-10] (*A*) ..... Jl 49
Versatile Office Computer (*BTR*) ..... F 55
Comte-Bellot, G.
On Aerodynamic Disturbances Caused by Single Hot-Wire Probes [71-APM-T] (*A*) ..... O 59
Concentration Measurement
An Interferometric Technique for Temperature and Concentration Measurement for an Air-Water Interface [70-WA/Temp-1] (*A*) ... My 54
Concorde
Concorde Success (*OS*) ..... N 45
Concordia, Charles receives honorary Doctor of Science degree from Union College ... Jl 74
Concrete
Concrete Lumber (*BTR*) ..... D 41
Controlled Sinking of Large Concrete Ocean Structures [71-UnT-6] (*A*) ..... D 47
Effective Stiffness of Concrete Coated Line Pipe [71-Pet-26] (*A*) ..... D 50
Nonlinear Analysis of Two-Dimensional Problems in Concrete Creep [71-APMW-25] (*A*) ..... N 57
Condensation, Condensers
Fluid Transient Conditions in Condenser Cooling Water Systems [70-WA/FE-25] (*A*) ..... F 74
Laminar Film Condensation from a Steam-Air Mixture Undergoing Forced Flow Down a Vertical Surface [71-HT-E] (*A*) ..... N 58
Liquid-Vapor Interactions in a Constant-Area Condensing Ejector [71-FE-21] (*A*) ..... S 52
Thermodynamic Characteristics of Staged Mechanical Vacuum Pumps on Condenser Service [70-WA/PID-10] (*A*) ..... Mr 64
Conductance, Conduction, Conductivity
Analytical Solution to Steady-State Heat-Conduction Problems with Irregularly Shaped Boundaries [71-HT-F] (*A*) ..... N 59
Combined Conduction, Convection, and Radiation Effects in Optically Thin Tube Flow [71-HT-17] (*A*) ..... O 62
Entrance Development of the Weakly Interacted MHD Plane Channel Flow as Affected by Wall Conductances [71-APM-A] (*A*) ..... O 59
An Experimental and Analytical Study of Radiative and Conductive Heat Transfer in Molten Glass [70-WA/HT-10] (*A*) ..... Ap 59
The Influence of Wall Conductance on Performance of the MHD Hydrostatic Thrust Bearing [70-Lub-1] (*A*) ..... Ja 42
Prediction of the Thermal Conductivity Anomaly of Simple Substances in the Critical Region [71-HT-28] (*A*) ..... O 63
A Probe Technique for Determining the Thermal Conductivity of Tissue [70-WA/HT-18] (*A*) Ap 59
Transient Combined Conductive and Radiative Heat Transfer [71-HT-22] (*A*) ..... O 62
A Traversing-Thermocouple Technique for the Rapid Measurement of Thermal Conductivity in the Range 300 to 1200 K [70-WA/Ener-2] (*A*) Ap 60
Variable Conductance Wall [71-HT-39] (*A*) .. N 58
Condyles
Elastic Analysis of Condylar Structures [70-WA/BHF-1] (*A*) ..... Ap 62
Cones
Exact Analysis of a Thick Sandwich Conical Shell by Forward Integration [71-APMW-20] (*A*) N 56
Connelly, John R.
Operation Arctic (*C*) ..... S 60
Conover, R. A.
Dynamic Stability of a Beam Carrying Moving Masses [71-APM-M] (*A*) ..... O 59
Conry, T. F.
A Mathematical Programming Method for Design of Elastic Bodies in Contact [70-WA/APM-52] (*A*) ..... Je 49
Conservation
Engineering a Better Environment
5: Waste Water Treatment Enhances Environment [based on 70-PEM-19] ..... Mr 40
Waste Monitoring Urged (*BTR*) ..... Mr 49
Considine, J. P.
Introduction to Data Base Design [71-Vibr-67] (*A*) N 53
Constantinescu, V. N.
A Qualitative Study of Gas Bearings Operating at High Subsonic and Supersonic Tangential Speeds [71-APM-U] (*A*) ..... O 59
Constraints
Optimization of the Constrained Machining Economics Problem by Geometric Programming [71-Prod-9] (*A*) ..... Jl 49
The Optimum Design of Spatial Frames Using the Method of Constrained Steepest Descent with State Equations [71-DE-H] (*A*) ..... Jl 48
Construction Industry
Concrete Lumber (*BTR*) ..... D 41
Consultants
The Many Roles of a Consulting Engineer [71-IPwr-6] (*A*) ..... S 54
Consumers
AMA Views Consumer Movement at 3-Day Briefing on "Product Liability and Consumerism" ..... Je 57
Contact
Bounds on the Maximum Contact Stress of an Indented Elastic Layer [71-APM-E] (*A*) ... O 60
On the Contact Problem of a Rigid Punch Pressed on a Viscoelastic Beam [71-APMW-18] (*A*) N 56
On the Contact Problems of Inflated Cylindrical Membranes with a Life Raft as an Example [71-APM-11] (*A*) ..... S 56
Contact Ratio of Worm Gears [70-Mech-49] (*A*) Ja 51
Elastohydrodynamic Hertzian Contacts
Part 1 ..... N 14
Part 2 ..... D 17
Fretting and Fretting-Fatigue in Metal-to-Metal Contacts [71-DE-38] (*A*) ..... Ag 46
A Mathematical Programming Method for Design of Elastic Bodies in Contact [70-WA/APM-53] (*A*) ..... Je 49
Containerization
Container Control System (*NB*) ..... O 73
New Cargo Era Unfolding (*BTR*) ..... Ja 32
Photo Briefs
50-Ton Straddle Crane; Ready for Containerization; Sideloading Lift Truck; Tape-Controlled Stacker Systems (*PB*) ..... Jl 32, 33
Containers
See Reservoirs
Containment
LMFBR Fuel Shipping—Containment and Heat Transport [71-NE-6] (*A*) ..... Jl 42
Contamination
See also Manned Space Station
Effects of Polyurethane Foam on Fuel System Contamination [71-GT-54] (*A*) ..... Jl 39
Contant, Peter M. deceased ..... Ap 88
Contests
ASME Baltimore Section Awards Savings Bonds to High School Essay Winners ..... My 85
ASME Design Problem Contest
9th annual, 1969–1970
First prize presented at 1970 WAM to Jack M. Perkinson ..... Ja 74, 75
10th annual, 1970–1971
First-prize winner is Barry T. Baker ..... S 91
Design in Steel Award Contest 1970–1971 .. My 85
Main (Charles T.) Award contest papers of 1971
The Engineer and Society: Students Speak Out S 33
Winner
JAMES M. SINGLETON
Can Engineers Continue to Advance Human Welfare? (*A*) ..... S 34
Runnersup
ALAN D. ANDERSON
How to Fight Pollution (*A*) ..... S 34

Contests (*Continued*)
RONALD WAYNE BURR
Technician to Politician—One Small Step for Man (*A*).....S 34
JACK GAMMILL CLEMENS
How Engineers Can Improve Their Standing in Society (*A*).....S 35
K. FRED RIST
Traffic Safety and the Engineer (*A*).....S 35
DEBORAH M. SCHMITZ
Social Responsibility and Engineering (*A*)..S 35
Old Guard Contest at 1970 WAM Won by J. R. Titone.....Ja 90
PE & M Division to Send Student Paper Winner to Conference.....Mr 80
Urban Vehicle Design Competition (UVDC) of 1972 Is Underway (*NR*).....D 64
Williston Medal contest papers of 1971
Civic Service: Young Engineers Set Forth Bold Views.....Ag 31
Winner
JAMES A. WILLMS
To Be a Good Citizen (*A*).....Ag 32
Runnersup
ADNAN AKAY
What Can an Engineer Do? (*A*).....Ag 32
P. H. BARRETT
Right Man—Wrong Job (*A*).....Ag 32
DANIEL T. DALEY
The Image of an Engineer (*A*).....Ag 33
THOMAS KELCEC
Engineering, Ethics, and the Environment (*A*) Ag 33
HORST KLEIN
The Responsibilities of the Engineer to the Craftsman (*A*).....Ag 33
RALPH F. NELSON, JR.
Engineering: A Hope for the Future or a Relic of the Past (*A*).....Ag 33

Continental Shelf
See Offshore Technology

Continuous Electroslag Melting (CESM)
Making Specialty Steel in a Special Way (*BTR*) Ja 36

Continuum Theory
A Continuum Theory of Fluid Saturated Porous Media [70-WA/APM-36] (*A*).....Je 47

Contraction
Generalized Contraction Coefficient of an Orifice for Subsonic and Supercritical Flows [70-WA/FM-1] (*A*).....Ap 64

Control Systems
See also Automatic Control
Apartment Air Conditioning (*NB*).....Ap 72
Applications of Self-Organizing and Learning Control to Aeronautical and Industrial Systems [71-DE-22] (*A*).....Jl 46
A Computer-Aided Design Method Specially Applicable to Fluidic-Pneumatic Sequential Control Circuits [70-WA/Flcs-17] (*A*).....Je 44
Some Considerations in Design, Specification, and Evaluation of Digital Control System for Random Vibration Testing [71-Vibr-30] (*A*) N 50
A Continuing Study in the Determination of Temperatures in Metal Cutting Using Remote Thermocouples [70-WA/Prod-23](*A*)....Mr 62
Control of Machines by Conversational Speech [71-DE-7] (*A*).....Jl 45
Coordinated Motion Control of Prosthetic Arms and Remote Manipulators [70-Mech-75] (*A*) Ja 53
Fluidic Water Control for Water-Closet Tanks [70-WA/Flcs-11] (*A*).....Je 43
Lightning Protection Approaches for Gas Turbine Controls [71-GT-29] (*A*).....Jl 37
Microwave Radiator (*PB*).....S 44, 45
New Process Control Computer (*BTR*).....Mr 49
Numerically Controlled Machine Tools (*OS*) Ja 41
Precision Control for Deep Ocean Work [70-WA/UnT-5] (*A*).....Je 45
On the Prediction of Aerodynamically Created Sound Pressure Level of Control Valves [70-WA/FE-28] (*A*).....F 74
Process Optimization Control of Air Pollution [70-WA/APC-2] (*A*).....F 68
Safety Considerations in the Selections of Switches and Relays [71-DE-33] (*A*).....Jl 47
Sensor for the Control of Vehicular Gas Turbine Combustors [71-GT-63] (*A*).....Jl 39
A Single Joystick Hydraulic Control System with Six Independent Simultaneous Velocity Proportional Degrees of Freedom [70-Mech-54] (*A*) Ja 51
Tape-Controlled Stacker Systems (*PB*)..Jl 32, 33
Ten Years' Progress in Management, 1960–1970
III: General and Operations Management, 1960–1970
Physical Distribution—A New Dimension of Management Control [70-WA/Mgt-13] (*A*) Mr 58

Controlled Flash Evaporation (CFE)
Water Desalination Module (*NR*).....Mr 70

Convection
An Analysis of Combined Free and Forced Convection Heat Transfer from a Horizontal Circular Cylinder to a Transverse Flow [71-HT-O] (*A*).....N 59
Analysis of Turbulent Forced-Convection Heat Transfer to a Supercritical Fluid [71-HT-26] (*A*) O 62
An Analytical Investigation of Free Convection Heat Transfer to Supercritical Water [70-WA/HT-6] (*A*).....Ap 58
Combined Conduction, Convection, and Radiation Effects in Optically Thin Tube Flow [71-HT-17] (*A*).....O 62
Critical Rayleigh Numbers for Natural Convection of Water Confined in Square Cells with L/D from 0.5 to 8 [70-WA/HT-7] (*A*).....Ap 59
Developing Flow with Combined Forced-Free Convection in an Isothermal Vertical Tube [71-HT-6] (*A*).....O 61
Experiments on the Onset of Longitudinal Vortices in Laminar Forced Convection Between Horizontal Plates [71-HT-1] (*A*).....O 60
Free Convection from a Vertical Plate with Discontinuous Wall Temperature [71-HT-B] (*A*) N 58
Free Convection Through Vertical Plane Layers of Non-Newtonian Power Law Fluids [70-WA/HT-1] (*A*).....Ap 58
Free-Convective Heat Transfer to a Supercritical Fluid [71-HT-27] (*A*).....O 62
Heat Transfer Due to Combined Free and Forced Convection in a Horizontal and Isothermal Tube [71-HT-3] (*A*).....O 61
Nonstationary Quasi-Static Thermal Displacements and Thermal Stresses in a Cylindrical Body of Finite Height Subject to Convective Heat Losses [71-APM-D] (*A*).....O 59
A Numerical Solution for Natural Convection in Cylindrical Annuli [70-WA/HT-9] (*A*)....Ap 59

Conversation
See Vocalism

Conveyors
Dynamic Analysis of Structural Frames Supporting Vibrating Conveyors [71-Vibr-34] (*A*)..N 51
Effect of Higher Harmonics on Performance of Vibratory Conveyors [71-Vibr-35] (*A*).....N 51
High-Capacity Belt Conveyor Systems for Handling Bulk Material [70-WA/MH-1] (*A*) My 53
Overhead Conveyor System (*OS*).....S 47
Overland Belt Conveying of Jamaican Bauxite [70-WA/MH-5] (*A*).....My 53
Particle Motion on Oscillating Conveyors
Part 1: The Equations of Motion and the Rules for Predicting Motion from Transitions [71-Vibr-15] (*A*).....N 49
Part 2: Practical Solutions to the Equations of Motion and the Extension of the Theory to Beds of Granular Material [71-Vibr-16] (*A*).....N 49

Conway, E. F.
Instant Retrieval System for Drawings [71-DE-19] (*A*).....Jl 46

Cook, R. M.
Componentization for Fatigue Design and Testing (Provides Reliability for Modern Freight Cars) [71-RR-2] (*A*).....S 51
Design Considerations for Car Body Bolster Through Sill-Cushioned Underframe Freight Car [70-WA/RR-5] (*A*).....Je 42

Coolants, Cooling
See also Manned Space Station
An Approximate Analysis of Gaseous Film Cooling with Constant Fluid Properties [71-GT-3] (*A*) Ag 44
Developing Cooling Tower Recirculation Factors from Field Test Data [70-WA/HT-22] (*A*) Ap 60
The Effectiveness of Film Cooling with Three-Dimensional Slot Geometries [71-GT-11] (*A*) Jl 36
An Experimental Study of Coolant Combustion Effects in Transpiration Cooling [71-GT-72] (*A*) Jl 40
Film Boiling Transition Temperature for Tissue Cooled with Liquid Nitrogen [70-WA/HT-16] (*A*) Ap 60
Fluid Transient Conditions in Condenser Cooling Water Systems [70-WA/FE-25] (*A*).....F 74
Fluidic Temperature Control for Liquid-Cooled Space Suits [70-WA/Flcs-19] (*A*).....Je 44
Gas-Cooled Fast Breeder Reactor Designs [71-NE-2] (*A*).....Jl 42
Performance Evaluation of a Gas Turbine Drive Industrial Building Cooling System [71-GT-49] (*A*).....Jl 39
Performance of Air-Cooled Radiatively Heated Screen Matrices [70-WA/Sol-1] (*A*).....F 63
Reflective Cooling Ponds [70-WA/Pwr-4] (*A*) My 54
Research into Cooling-Water Discharge (*BTR*) Ag 35
Superheat Layer Thickness Measurements in Saturated and Subcooled Nucleate Boiling [71-HT-43] (*A*).....N 58
Cooling Tower Institute elects Norman J. Ely president.....My 88

Cooper, T. E.
A Probe Technique for Determining the Thermal Conductivity of Tissue [70-WA/HT-18] (*A*) Ap 59

Cooper, W. E.
Experimental Effort on Bursting of Constrained Disks as Related to the Effective Utilization of Yield Strength [71-PVP-49] (*A*).....S 48

Cooperrider, N. K.
The Hunting Behavior of Convectional Railway Trucks [70-WA/RR-2] (*A*).....Je 42

COPANT
See Pan American Standards Commission

Copeland, E. H.
Environment-Energy Balance (*C*).....Jl 52

Copper
Exploitation of Cu-Rich Damping Alloys
Part 1—The Search for Alloys with High Damping at Low Stress [71-Vibr-106] (*A*).....D 54
Liquid Wire (*BTR*).....Jl 28
New Chromium-Plating Process (*OS*).....Ag 43

Cores, Coring
Designing an Advanced Marine Corer [based on 69-WA/UnT-13]
Marine Coring (*C*).....F 77

Corey, R. C. receives Percy Nichols Award at 1970 WAM from AIME Coals Division and ASME Fuels Division.....Ja 72
Corrosion of Heat-Exchange Tubes in a Simulated Coal-Fired MHD System [70-WA/CD-3] (*A*) Ap 64

Corman, J. C.
Vaporization from Capillary Wick Structures [71-HT-35] (*A*).....O 63

Cornell, Donald H. reelected Vice-President, ASME Membership Policy Board 1972–1974 N 87

Cornell University
Laboratory of Plasma Studies
Controlled Fusion (*EN*).....D 68

Correlation Methods
On the Correlation of Analytical and Experimental Free Shear Layer Similarity Profiles by Spread Rate Parameters [70-WA/FE-12] (*A*).....F 72

Corrosion
An Analysis of Corrosion in Wire Ropes [70-WA/UnT-10] (*A*).....Je 46
Austenitic Stainless Steels with Unusual Mechanical and Corrosion Properties [71-Pet-38] (*A*).....D 51
Combating Well Casing Corrosion [71-Pet-16] (*A*) D 48
Corrosion of Heat-Exchange Tubes in a Simulated Coal-Fired MHD System [70-WA/CD-3] (*A*) Ap 64
Fireside Metal Wastage in Municipal Incinerators [70-WA/Inc-2] (*A*).....F 67
For Plant Management: Corrosion-Control Techniques [based on 70-PEM-23].....Ja 10
Laboratory Procedures for Evaluating High-Temperature Corrosion Resistance of Gas Turbine Alloys [70-WA/CD-2] (*A*).....Ap 65
The Role of Chloride in the Corrosion Caused by Flue Gases and Their Deposits [70-WA/CD-1] (*A*).....Ap 64
Underground Corrosion Study (*BTR*).....F 49

Cortex
Mechanical Properties and Histological Structure of Human Cortical Bone [70-WA/BHF-7] (*A*) Ap 63

Corum, James M.
Analytical Investigations of Compact Reinforcement for Radial Nozzles in Spherical Shells [71-PVP-26] (*A*).....Ag 52
Effect of Fillets on Stress Concentrations in Cylindrical Shells with Step Changes in Outside Diameter [71-PVP-27] (*A*).....Ag 52
Experimental and Finite Element Stress Analysis of a Thin-Shelled Cylinder-to-Cylinder Model [71-PVP-36] (*A*).....Ag 53

Cosines
See Direction Cosines

COSMIC
See United States: NASA

COSMIC ELAS
Short Courses Offered on ELAS Program at Duke (*EN*).....D 69

Cost
See also Design Cost
Ball Bearings: Cost vs. Value [based on 70-DE-48] Mr 20
Calculation of Tolerance Based on a Minimum Cost Approach [71-Vibr-114] (*A*).....D 55
The Cost Effectiveness of Natural and Synthetic Fiber Ropes in the Marine Environment [70-WA/UnT-9] (*A*).....Je 46
Design of Pressure Vessels for Optimized Cost [70-WA/PVP-4] (*A*).....F 76
Industrial Design: Its Role in Cost Reduction [based on 71-DE-25].....D 23
The Role of Industrial Design in Cost Reduction [71-DE-25] (*A*).....Jl 46

Cothern, J. H.
Falkner-Skan Flows of Power-Law Fluids [71-FE-35] (*A*).....S 52

Cotton, K. C.
Analysis of Changes in the Performance Characteristics of Steam Turbines [70-WA/PTC-1] (*A*).....My 52
Tracer Tests for Nuclear Power Plant Steam Turbines [based on 69-WA/PTC-3].....Ja 15

Couplers, Coupling
A Continuing Study in the Determination of Temperatures in Metal Cutting Using Remote Thermocouples [70-WA/Prod-23] (*A*)....Mr 62
The Coupled Bending-Bending Vibration of Pre-Twisted Tapered Blading [71-Vibr-78] (*A*) D 52
Coupler Cognates of Eight-Link Mechanisms
Part 1—With Ternary and Quaternary Links [70-Mech-66] (*A*).....Ja 52
Part 2—With Ternary Links and Double Joints [70-Mech-67] (*A*).....Ja 52
Dynamic Instability of a Cantilever Column Subjected to a Follower Force Including Thermomechanical Coupling Effect [71-APM-L] (*A*) O 60
Eight-Link Coupler Mechanism with Two Parallelogram Loops [70-Mech-52] (*A*).....Ja 51
Existence Criteria of an Overconstrained Spatial Mechanism with Three Revolute Pairs and One Spherical Pair [70-Mech-72] (*A*).....Ja 52
Imaginative Imaging (*BTR*).....Ag 35
The Method of Residues for the Synthesis of Coupler Curve Generating Mechanisms [70-Mech-53] (*A*).....Ja 51
Noise Abatement in Industry
Interaction of Sound and Structures
Sound Transmission Through an Elastic Enclosure Acoustically Closely Coupled to a Noise Source [70-WA/DE-12] (*A*) F 67, Ap 56
Optimal Trajectories and Controls for Systems of Coupled Rigid Bodies [71-Vibr-82] (*A*)....D 52
Optimum Design of a Four-Bar Linkage Whose Coupler Path Has Specified Extremes [71-Vibr-109] (*A*).....D 54
Synthesis of a Four-Bar Linkage Adjustable for Variable Radius of Curvature of a Coupler Curve [70-Mech-80] (*A*).....Ja 54
Synthesis of Six-Link Mechanisms for Simultaneous Coordination of Coupler, Input, and Output Links [70-Mech-57] (*A*).....Ja 51

Coutinho, John de S. awarded academic degree of Doktor-Ingenieur by School of Mechanical Engineering, Technical University of Berlin, Germany.....Mr 84

Covey, J. N.
Sulfur Oxide Control and Fly Ash Utilization [71-Pwr-1] (*A*).....D 51

Cox, Andrew R. deceased.....F 106

Cox, C. R. named operations manager of Keystone Div., Dravo Corp., Pittsburgh, Pa. Jl 74

Cox, J. W. deceased.....Ag 87

Cox, L. G.
Reliability Design in Salt Water Disposal and Inspection Facilities [71-Pet-8] (*A*).....D 48

Cox, R. L.
LMFBR Fuel Shipping—Containment and Heat Transport [71-NE-6] (*A*).....Jl 42

Coxe, F. S.
Precision Control for Deep Ocean Work [70-WA/UnT-5] (*A*).....Je 45

Coyne, J. C.
Conditions for the Rupture of a Lubricating Film
Part II: New Boundary Conditions for Reynolds Equation [70-Lub-3] (*A*)...Ja 42

Cozzarelli, F.
Wave-Front Stress Relaxation in a One-Dimensional Nonlinear Inelastic Material with Temperature and Position Dependent Properties [70-WA/APM-20] (*A*).....My 58

Cracking, Cracks
Analysis of Cracks in Welded Elbows [71-PVP-32] (*A*).....Ag 53
Anistropy of Fatigue Crack Propagation [71-Met-G] (*A*).....Ag 48
Cause and Prevention of Stress-Relief Cracking in Quenched and Tempered Steel Weldments [71-PVP-3] (*A*).....Ag 49
Crack Propagation in a Linearly Viscoelastic Strip [71-APM-B] (*A*).....O 59
Effect of Size on Cracking of Materials (*NTB*) S 40
Effects of Tension-Compression Cycling on Fatigue Crack Growth in High Strength Alloys [71-PVP-2] (*A*).....Ag 49
Fatigue Crack Growth in Type 316 Stainless Steel at High Temperature [71-PVP-25] (*A*)...Ag 52
Fatigue-Crack Growth Rates and Fracture Toughness Study of Welded Aluminum Alloy 5083 [70-WA/PVP-5] (*A*).....F 76
Fatigue-Crack Propagation in Steels of Various Yield Strengths [71-PVP-12] (*A*).....Ag 51
Holographic Detection of Microcracks [71-Met-C] (*A*).....Ag 48
Investigation of Cracking in Nuclear Reactor Primary Piping System [71-PVP-33] (*A*)..Ag 53
Local and Gross Deformations in Cracked Metallic Plates and an Engineering Ductile Fracture Analysis [71-PVP-53] (*A*).....S 48
Mode II Fatigue Crack Propagation [71-Met-J] (*A*) S 54
Numerical Method for Determining Stress Intensity Factors of an Interior Crack in a Finite Plate [71-Met-L] (*A*).....S 54
The Part-Through Surface Crack in an Elastic Plate [71-APM-20] (*A*).....S 56
On the Plane Elastostatic Problem of a Loaded Crack Terminating at a Material Interface [71-APM-O] (*A*).....O 59
Resistance of Some Standard Compressor Materials to Hydrogen Sulfide Stress-Corrosion Cracking [71-Pet-25] (*A*).....D 50
Shear Fatigue Crack Propagation and Shear Fracture in a Ductile Steel HY-130 [71-PVP-54] (*A*).....S 50
Stress-Intensity Factors for a Surface Crack in a Finite Solid [71-APMW-6] (*A*).....N 55
Thermal Crack Propagation [71-Met-N] (*A*)..S 55

Cranes
50-Ton Straddle Crane (*PB*).....Jl 32, 33

Craniology
Craniometric Measurements of Human Skulls [70-WA/BHF-8] (*A*).....Ap 63
Flexure of Layered Cranial Bone [70-WA/BHF-5] (*A*).....Ap 63
The Investigation of Bone's Substructure Using Megaherts Sound and a Porous Model [70-WA/BHF-11] (*A*).....Ap 63

Cranks
Design of Spatial Four-Link Crank-Rocker Mechanisms With or Without a Passive Constraint [70-Mech-7] (*A*).....Ja 46
Nonlinear Dynamic Response of Elastic Slider-Crank Mechanism [70-Mech-39] (*A*).....Ja 50
Reduction of Shaking Forces in a Slider Crank Mechanism [70-Mech-73] (*A*).....Ja 53

Crankshafts
Determining Critical Speeds of a Crankshaft-Flywheel Assembly for an Outboard Motor [71-Vibr-54] (*A*).....N 52
Stress Distributions in Some Diesel Engine Crankshafts [71-DGP-1] (*A*).....Ag 48

Cranston, H. J.
Automatic Checkout of Complex Modules [71-Vibr-115] (*A*).....D 55

Craters
Theoretical Model of Crater Wear [71-Prod-8] (*A*) Jl 49

Crawford, R. G.
Publication of Papers (*C*).....Jl 51

Creativity
The Art of the Matter (*BTR*).....Ja 37
Design Students Take Waste Item and Turn It into Usable Products (*EN*).....Ag 68

Creech, M. D. deceased.....N 93

Creep
Analysis of Stresses in Pressurized Welded Pipe in the Creep Range [71-PVP-66] (*A*).....S 50
Combined Elastic-Plastic-Creep Analysis of Two-Dimensional Bodies [71-PVP-30] (*A*).....Ag 52
Creep and Creep-Rupture Properties of Types 304N and 316N Stainless Steels [71-Pet-34] (*A*) D 50
Creep at Constant Stress in Isotropic Solids [71-APM-23] (*A*).....S 57
Creep Buckling of Thin-Walled Circular Cylindrical Shells Subject to Radial Pressure and Thermal Gradients [70-WA/APM-8] (*A*)..My 57
Creep/Fatigue Interaction Correlation for 304 Stainless Steel Subjected to Strain-Controlled Cycling with Hold Times at Peak Strain [71-PVP-6] (*A*).....Ag 50
Creep of Single Crystal Nickel-Base Superalloy Tubes Under Biaxial Tension [71-APM-1] (*A*) S 55
Creep Stress Distribution in Long, Cylindrical Reactor Pressure Vessels [71-PVP-29] (*A*) Ag 52
A Design Oriented Approach to Creep and Plasticity in Finite Element Programs [70-WA/DE-4] (*A*).....F 65
Experimental Determination of Some Kernel Functions in the Multiple Integral Method for Nonlinear Creep of Polyvinyl Chloride [70-WA/APM-21] (*A*).....My 59
A Linear Compressibility Assumption for the Multiple Integral Representation of Nonlinear Creep of Polyurethane [70-WA/APM-6] (*A*) My 57
Nonlinear Analysis of Two-Dimensional Problems in Concrete Creep [71-APMW-25] (*A*).....N 57
On the Relationship Between Plastic Shakedown and the Repeated Loading of Creep Structures [71-APM-C] (*A*).....O 59
Short-Time, Biaxial Creep of an Aluminum Alloy with Abrupt Changes of Temperature and State of Stress [70-WA/APM-41] (*A*).....Je 47
Stress Analysis of High Temperature Pyrolysis Heater Coil Systems Subjected to Creep and Low Cycle Fatigue [71-Pet-17] (*A*).....D 49
A Theoretical Approach to Creep Deformation During Intermittent Load [71-Met-F] (*A*) Ag 48

Crerar (John) Library
National Translations Center
International Cooperation on Translations (*TL*) "Translations Register-Index".....Je 63

Crette, J. P.
Phenix Design and Preliminary Studies on 1000-MWe Fast Reactor [71-NE-18] (*A*).....Jl 44

CRG
See Catalytic Rich Gas

Crimmins, P. P.
Fracture of Structural Metals as Related to Pressure-Vessel Integrity and In-Service Monitoring [71-PVP-60] (*A*).....S 50

Crisman, Sewell W. appointed general sales manager of Elliott Co., division of Carrier Corp.....Je 78

Crocker, M. J.
Noise Abatement in Industry
Interaction of Sound and Structures
Sound and Vibration Transmission Through Panels and Tie Beams Using Statistical Energy Analysis [70-WA/DE-2] (*A*) F 65, Ap 55

Crofoot, G. E. deceased.....Jl 78

Cromer, Sylvan J. elected Fellow ASME..S 99

Crooker, T. W.
Effects of Tension-Compression Cycling on Fatigue Crack Growth in High Strength Alloys [71-PVP-2] (*A*).....Ag 49

Crossflow
See also Flow; Fluids
Effects of Crossflow on Impingement Heat Transfer [71-GT-1] (*A*).....Ag 44

Crossley, F. R. E.
The Intersections of Solids Shown by Electronic Analog for Mechanism Simulation [70-Mech-6] (*A*).....Ja 46
Stereoscopic Drawings Made by Analog Computer of Three Dimensional Surfaces Generated by Spatial Mechanism [70-Mech-38] (*A*).....Ja 49

Cryogenics
Bellows Vibration with Internal Cryogenic Fluid Flows [71-Vibr-14] (*A*).....N 49
Cryogenic Blood Preservation [based on 70-WA/HT-20].....My 57
Preservation of Blood at Cryogenic Temperatures [70-WA/HT-20] (*A*).....Ap 60
Cryo-Immunology: *The* Antigenic Properties of the Male Rabbit Urogenital System as Studied by Selective Freezing of Its Components [70-WA/HT-19] (*A*).....Ap 60
Cryo-Immunology: Surgical Approach and Thermal Regimen for Freezing the Elements of the Male Rabbit Urogenital System [70-WA/HT-17] (*A*).....Ap 59
Development of Cryogenic Heat Pipes [70-WA/Ener-1] (*A*).....Ap 60
Marine Installation of a Gas Fired Turbine for Cryogenic Gas Processing [71-GT-28] (*A*) Jl 36
Rolling-Element Fatigue and Lubrication with Fluorinated Polyethers at Cryogenic Temperatures [70-Lub-17] (*A*).....Ja 44
Welding of Cryonic 5 Steel [71-Pet-33] (*A*)...D 50

Cryonic 5
Welding of Cryonic 5 Steel [71-Pet-33] (*A*)...D 50

Crystal
Hot Ice (*PB*).....Mr 54, 55
Hot Wafers (*PB*).....N 47
The Liquid Crystal (*BTR*).....S 42

Cubic System
Resonance Classification in a Cubic System [71-APM-34] (*A*).....S 57

Cuffel, R. F.
Turbulent Boundary Layer and Heat Transfer Measurements Along a Convergent-Divergent Nozzle [71-HT-4] (*A*).....O 61
Culbertson, W. LeRoy appointed to 2-year term as at-large council member by College of Engineering Advisory Council at Kansas State University, Manhattan.....N 89
Cultural Responsibility
Civic Services: Young Engineers Set Forth Bold Views (Williston Medal contest papers of 1971) Ag 31
Winner
JAMES A. WILLMS
To Be a Good Citizen (*A*).....Ag 32
Runnersup
ADNAN AKAY
What Can an Engineer Do? (*A*).....Ag 32
P. H. BARRETT
Right Man—Wrong Job (*A*).....Ag 32
DANIEL T. DALEY
The Image of an Engineer (*A*).....Ag 33
THOMAS KELCEC
Engineering, Ethics, and the Environment (*A*) Ag 33
HORST KLEIN
The Responsibilities of the Engineer to the Craftsman (*A*).....Ag 33
RALPH F. NELSON, JR.
Engineering: A Hope for the Future or a Relic of the Past (*A*).....Ag 33
Cummiskey, William M. deceased.....F 106
Cunniff, P. F.
Normal Mode Solution for the Vibrational Motions of Long Flexible Booms on the RAE Satellite [71-DE-J] (*A*).....Jl 48
Cunningham, F. E.
Elliptical Gears [70-Mech-68] (*A*).....Ja 52
Cunnington, G. R.
Infrared Radiation of Thin Plastic Films [70-WA/HT-15] (*A*).....Ap 59
Cup Drawing
Strain Histories and Strain Distributions in a Cup Drawing Operation [70-WA/Prod-6] (*A*)..Mr 59
Curington, W. C.
An Underwater Christmas Tree [71-Pet-40] (*A*) D 51
Currah, Walter
Evolution and Technology (*C*).....My 60
Current Books
See Engineering Societies Library
Curreri, J. R.
Axial Vibration Transmission Characteristics of Shells of Revolution [71-Vibr-7] (*A*).....N 48
Curtis, David A.
The Solid-State Lamp [based on 71-DE-6]....N 22
Solid-State Light Sources [71-DE-6] (*A*)...Jl 45
Curtis Bay, Maryland
Curtis Bay's New Ship-Barge Loader [70-WA/MH-4] (*A*).....My 54
Curves, Curving
See also Cycloids
Design of Four-Bar Linkages Using Interactive Computer Graphics and Synthesis Curves [70-Mech-45] (*A*).....Ja 50
The Effect of Curvature on Heat or Mass Transfer from an Isothermal Sphere [71-HT-7] (*A*)..O 61
The Method of Residues for the Synthesis of Coupler Curve Generating Mechanisms [70-Mech-53] (*A*).....Ja 51
Synthesis of a Four-Bar Linkage Adjustable for Variable Radius of Curvature of a Coupler Curve [70-Mech-80] (*A*).....Ja 54
Velocity and Acceleration Synthesis of Four-Bar Mechanisms by Curve Matching [70-Mech-42] (*A*).....Ja 50
CUSHION RAIL
Rocket Train (*BTR*).....D 40
Cushioning
See Air Cushioning; Sill Cushioning
Cutler, A. J. B.
The Role of Chloride in the Corrosion Caused by Flue Gases and Their Deposits [70-WA/CD-1] (*A*).....Ap 64
Cutouts
Cutouts in Shallow Shells [70-WA/APM-3] (*A*) My 57
Cutting
Cut by the "Light Fantastic" (*BTR*).....Je 28
Cycles, Cycling
Creep/Fatigue Interaction Correlation for 304 Stainless Steel Subjected to Strain-Controlled Cycling with Hold Times at Peak Strain [71-PVP-6] (*A*).....Ag 50
Cyclic Energy Demands Supplied Economically with Gas Turbines and Combined Cycle Plants [71-GT-71] (*A*).....Jl 40
Design and Operating Experiences with Gas Turbine Combined Cycle Units [71-GT-22] (*A*) Ag 45
Dynamic Behavior and Control of Single-Shaft Closed-Cycle Gas Turbines [71-GT-16] (*A*) Ag 45
Effects of Tension-Compression Cycling on Fatigue Crack Growth in High Strength Alloys [71-PVP-2] (*A*).....Ag 49
Operating Concept for a 240-MW Combined Cycle Intermediate Peaking Plant [71-GT-53] (*A*) Ag 45
The Performance of the TCS 670-B Turbine in the Closed Cycle Test Facility at Fort Belvoir, Virginia [71-GT-52] (*A*).....Jl 39
Cycloids
Generalized Cycloidal Motion [70-Mech-22] (*A*) Ja 48
Cylinders
Analyses of Axisymmetric Upsetting and Plane-Strain Side-Pressing of Solid Cylinders by the Finite Element Method [70-WA/Prod-4] (*A*) Mr 59
An Analysis of Axisymmetric Turbulent Flow Past a Long Cylinder [71-FE-25] (*A*).....S 52
An Analysis of Combined Free and Forced Convection Heat Transfer from a Horizontal Circular Cylinder to a Transverse Flow [71-HT-O] (*A*).....N 59
Asymptotic Formulas for the Buckling Stresses of Axially Compressed Cylinders with Localized or Random Axisymmetric Imperfections [71-APM-29] (*A*).....S 57
Bending of Cylindrical Shells by Initial Parameter Method [70-WA/PVP-2] (*A*).....F 75
Buckling of Vessels Composed of Combinations of Cylindrical and Spherical Shells [70-WA/APM-19] (*A*).....My 58
Burst-Strength Analysis of Finite-Length, Specially Orthotropic Cylinders with Different End Closures [71-PVP-21] (*A*).....Ag 52
Circular Cylinder Enclosed in Various Shrouds [71-Vibr-28] (*A*).....N 50
Concentrated Forces on Shallow Cylindrical Shells [70-WA/APM-2] (*A*).....My 57
On the Contact Problems of Inflated Cylindrical Membranes with a Life Raft as an Example [71-APM-11] (*A*).....S 56
Creep Buckling of Thin-Walled Circular Cylindrical Shells Subject to Radial Pressure and Thermal Gradients [70-WA/APM-8] (*A*)..My 57
Creep Stress Distribution in Long, Cylindrical Reactor Pressure Vessels [71-PVP-29] (*A*) Ag 52
Determination of the Radiation Properties of a Semi-Transparent Cylindrical Body Using the Monte Carlo Method [70-WA/HT-13] (*A*) Ap 59
Dynamic Response of Cylindrical Shells with Initial Stress and Subjected to General Three-Dimensional Surface Loads [71-APM-12] (*A*) S 56
Effect of Fillets on Stress Concentrations in Cylindrical Shells with Step Changes in Outside Diameter [71-PVP-27] (*A*).....Ag 52
The Effect of Pulse Shape on the Dynamic Plastic Deformation of Reinforced Circular Cylindrical Shells [71-PVP-31] (*A*).....Ag 53
Electrochemical Grinding of Cylindrical Test Specimens [71-Prod-11] (*A*).....Jl 49
Experimental and Finite Element Stress Analysis of a Thin-Shelled Cylinder-to-Cylinder Model [71-PVP-36] (*A*).....Ag 53
Fatigue of Cylinders Subjected to Pulsating Internal Pressure [71-PVP-15] (*A*).....Ag 51
Flow Near Self-Excited and Forced Vibrating Circular Cylinders [71-Vibr-25] (*A*).....N 50
Fluctuating Lift Forces of the Karman Vortex Streets on Single Circular Cylinders and in Tube Bundles
Part 1: The Vortex Street Geometry of the Single Circular Cylinder [71-Vibr-11] (*A*).....N 49
Part 2: Lift Forces of Single Cylinders [71-Vibr-12] (*A*).....N 49
Part 3: Lift Forces in Tube Bundles [71-Vibr-13] (*A*).....N 48
The Forces on a Cylinder Oscillating Sinusoidally in Water [71-Pet-2] (*A*).....D 47
The Influence of Turbulence on Mass Transfer from Cylinders [70-WA/HT-3] (*A*).....Ap 58
Laminated Transversely Isotropic Cylindrical Shells [70-WA/APM-53] (*A*).....Je 48
Limit Analysis for Combined Edge and Pressure Loading on a Cylindrical Shell [71-PVP-22] (*A*) Ag 52
Lower Bound to Limit Pressure of Nozzle-to-Cylindrical Shell Attachment [71-PVP-38] (*A*) Ag 53
Nonstationary Quasi-Static Thermal Displacements and Thermal Stresses in a Cylindrical Body of Finite Height Subject to Convective Heat Losses [71-APM-D] (*A*).....O 59
A Numerical Solution for Natural Convection in Cylindrical Annuli [70-WA/HT-9] (*A*)...Ap 59
Potential Flow Past a Group of Circular Cylinders [71-FE-18] (*A*).....S 52
Predictions of Momentum Transfer Between Rotating Cylinders: The Narrow Gap Problem [71-APM-30] (*A*).....O 58
Propagation of Longitudinal Waves in Circularly Cylindrical Bone Elements [71-APM-5] (*A*) S 55
Pure Bending, Stretching, and Twisting of Anisotropic Cylindrical Shells [71-APMW-4] (*A*) N 55
Radial Flow Measurements of Hydrogen Near Its Critical Point in a Heated Cylindrical Tube [71-HT-25] (*A*).....O 62
Radiation and Response of Cylindrical Beams Excited by Sound [71-Vibr-84] (*A*).....D 52
The Scattering of Shock Waves by Cylindrical Cavities in Liquids and Solids [70-WA/APM-57] (*A*).....Je 49
Semimembrane Analysis of Cylindrical Shells Subjected to Wind Loading [70-WA/APM-7] (*A*) My 57
Stress Concentration in a Cylindrical Shell Containing a Circular Hole [71-PVP-9] (*A*)...Ag 50
Stress Resultants and Out-of-Plane Deformations in Stiff Rings Attached to Elastic Cylinders and Subject to Concentrated Loads [70-WA/PVP-1] (*A*).....F 76
Stresses in a Pressurized Ribbed Cylindrical Shell with a Reinforced Circular Hole Interrupting a Rib [71-PVP-8] (*A*).....Ag 51
Theoretical Analysis of Laminar Pipe Flow in a Porous Wall Cylinder [70-WA/Flcs-3] (*A*)..Je 43
Thermal Control Optimization for Cylindrical Spacecraft [70-WA/Aut-13] (*A*).....F 70
Thermal Stresses in Thick-Walled Circular Cylinders Under Axisymmetric Temperature Distribution [71-PVP-16] (*A*).....Ag 51
Traveling Waves in Rotating Cylindrical Shells [71-DE-A] (*A*).....Jl 47
Unsteady Flow About a Solid Cylinder Falling Through a Viscous Fluid Contained in a Vertical Tube [70-WA/FE-9] (*A*).....F 72
The Unsteady Wake of an Oscillating Cylinder at Low Reynolds Number [71-APM-33] (*A*)..O 59
Velocity Distribution in the Liquid Film During Draining on a Cylindrical Surface [71-APM-J] (*A*).....O 60
Visual Observations and Torque Measurements in the Taylor Vortex Regime Between Eccentric Rotating Cylinders [70-Lub-13] (*A*).....Ja 43
Cywin, Allen
Engineering Water Resources for 2070 [based on 70-WA/PID-8].....Jl 7
Engineering Water Resources of the Future [70-WA/PID-8] (*A*).....Mr 64

D

Dack, Walter S. unanimously elected, by board of directors, as honorary lifetime member of Association of Diesel Specialists.....Ag 85
Da Costa, M. J.
Noise Abatement in Industry
Interaction of Sound and Structures
Underwater Behavior of Free-Flooded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
DaDeppo, D. A.
Large Sideward Deflections of Two-Hinged Circular Arches [71-DE-E] (*A*).....Jl 48
Dahlquist, C. A.
A Family of Viscoelastic Materials for Diverse Damping Applications [71-Vibr-47] (*A*)....N 52
Dairyland Power Cooperative
Design of the Supercritical 325-MW Unit Addition to Genoa Station No. 3 [71-Pwr-3] (*A*)....D 51
Operating Experience and Availability of Genoa 3 Unit [71-Pwr-4] (*A*).....D 51
Dalal, J. G.
Stochastic Model for Machining Processes—Optimal Decision-Making and Control [70-WA/Prod-20] (*A*).....Mr 62
Dale, J. D.
Free Convection Through Vertical Plane Layers of Non-Newtonian Power Law Fluids [70-WA/HT-1] (*A*).....Ap 58
Dale, O. B.
Multi-Parameter Optimization of Damped Linear Continuous Systems [71-Vibr-1] (*A*).....N 48
d'Alembert Force
See Force, d'Alembert
Dalton, C.
The Forces on a Cylinder Oscillating Sinusoidally in Water [71-Pet-2] (*A*).....D 47
Potential Flow Past a Group of Circular Cylinders [71-FE-18] (*A*).....S 52

Daman, Ernest L. named to a three-year term, representing ASME in Division of Engineering, on National Research Council, industrial arm of National Academy of Sciences.....Ja 105

Dampers, Damping
Attenuation of Vibrational Amplitudes Through the Use of Multiple-Layered Damping Treatments [71-Vibr-40] (*A*).....N 51
Damped Isolation and Undamped Vibration Absorber Model for Vibration Control [71-Vibr-45] (*A*).....N 52
Developing Composites for Torsional Damper-Spring Systems [71-DE-31] (*A*).....Jl 47
The Effect of Stringer Width and Damping on the Response of Skin-Stringer Structures [71-Vibr-101] (*A*).....D 54
The Effect of Support Flexibility and Damping on the Synchronous Response of a Single-Mass Flexible Rotor [71-Vibr-72] (*A*).....N 54
Evaluation of Structural Dampers Under Linear or Sinusoidal Displacement Control [71-Vibr-46] (*A*).....N 52
Exploitation of Cu-Rich Damping Alloys
Part 1—The Search for Alloys with High Damping at Low Stress [71-Vibr-106] (*A*).....D 54
A Family of Viscoelastic Materials for Diverse Damping Applications [71-Vibr-47] (*A*).....N 52
Hydraulically Damped Motion of Gondola Cars [70-WA/RR-4] (*A*).....Je 42
Methods of Modeling and Analyzing Viscoelastically Damped Structures [71-Vibr-36] (*A*).....N 51
Multi-Parameter Optimization of Damped Linear Continuous Systems [71-Vibr-1] (*A*).....N 48
Optimum Damping and Stiffness in a Nonlinear Four-Degree-of-Freedom System Subject to Shock Load [70-WA/APM-18] (*A*).....My 58
Relationship Among Frequency, Amplitude, Damping and Human Awareness for Floor Vibration Due to Impact [71-Vibr-44] (*A*) N 51
Rolamite—A Tool in Hysteresis Measurement [71-Vibr-27] (*A*).....N 50
Spring and Follower Characteristics Due to Internal Damping and Cam Actuation [70-Mech-76] (*A*) Ja 53
Structural Damping Using a Four Layer Sandwich [71-Vibr-20] (*A*).....N 49
Theory of the Dynamic Vibration Neutralizer with Motion-Limiting Stops [71-APMW-14] (*A*) N 56
Vibrations of Multicore Orthotropic Sandwich Plates [71-Vibr-48] (*A*).....N 52

Dams
Of Dams and 'Quakes (*BTR*).....O 42

Daniel, I. M.
Three-Dimensional Analysis of Hypoid Gears [71-DE-D] (*A*).....Jl 48

Danvic, J. A. appointed manager, fluidics engineering and operations, at the Bailey Fluidics Automation Center, a unit of the Bailey Meter Co.....O 89

Danziger, Norman H. named assistant vice-president, engineering services, Parsons, Brinckerhoff, Quade & Douglas.....O 89

D'Arcy, D. F.
On Acoustic Propagation and Critical Mass Flux in Two-Phase Flow [71-HT-K] (*A*).....N 58

Daresta, F. G.
Gas Turbine Propulsion for High Utilization Cargo Ships [71-GT-83] (*A*).....Jl 41

Data Systems
See also Beryllium; Cardiology; Communications; Problem Solving
Conference on Data Communication and Business Strategy Stresses Change—Action Called for Now (*NR*).....D 65
Economics of Remote Data Processing for Oil and Gas Production [71-Pet-39] (*A*).....D 51
Instant Retrieval System for Drawings [71-DE-19] (*A*).....Jl 46
Introduction to Data Base Design [71-Vibr-67] (*A*) N 53
Keys to Developing Machines with High-Level Artificial Intelligence [71-DE-21] (*A*).....Jl 46

Dauber, Clarence A. receives Fellow ASME certificate.....F 102

Davies, Clarence E. Secretary Emeritus of ASME receives recognition and ovation at 1970 WAM for 50 years of service to ASME and mechanical engineering profession..Ja 72

Davies, H. G.
Noise Abatement in Industry
Interaction of Sound and Structures
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56

Davis, C. F.
Propagation of Longitudinal Waves in Circularly Cylindrical Bone Elements [71-APM-5] (*A*) S 55

Davis, Calvin R. appointed manager, Detroit Air Valve Section, Hanna Fluid Power Div. of Rex Chainbelt Inc., Chicago, Ill. ...My 88

Davis, D. E.
A Newly Developed Output Detector for Fluidic Devices [70-WA/Flcs-7] (*A*).....Je 43

Davis, Jess Harrison president of Stevens Institute of Technology, will retire in Sept. 1972.....Jl 74

Davis, R. L.
Circumferential Welds in Multilayer Pressure Vessels [70-WA/PVP-6] (*A*).....F 76

Davis, R. T.
Incompressible Laminar Boundary Layers on a Parabola at Angle of Attack: A Study of the Separation Point [71-APM-31] (*A*).....O 58

Davis, W. L.
The Biomechanics of Torsional Fractures: The Effect of Loading on Ultimate Properties [70-WA/BHF-9] (*A*).....Ap 64

Day, John S.
Ten Years' Progress in Management, 1960-1970
IV: Management Education
Dilemmas for Business Education in the 1970's [70-WA/Mgt-8] (*A*).....Mr 58

Deak, A. L.
Large Deflections of a Linearly Viscoelastic Shallow Spherical Shell [71-APMW-28] (*A*).....N 57

Dean, Horace K. deceased.....Ja 107

Debler, W.
Flow Over an Oscillating Plate with Suction or with an Intermediate Film: Two Exact Solutions of the Navier-Stokes Equations [70-WA/APM-22] (*A*).....My 59

Decarburization
Argon-Oxygen Process (*OS*).....My 50

Deceased.....Ja 107; F 106; Mr 88; Ap 88; My 91; Je 80; Jl 78; Ag 87; S 99; O 91; N 92; D 83

Erratum (*C*).....My 61

Decision Making
Decision to Convert or Replace the Boiler [71-IPwr-1] (*A*).....S 53
Evaluating Gas Turbines for Process Applications—Economic Guides for the Decision Maker [71-GT-50] (*A*).....Jl 38

Decker, Harold A. honored by Boiler and Pressure Vessel Committee of ASME with a certificate of award in appreciation of contributions during last 10 years in area of boiler and pressure vessel safety.....D 80

DeCorso, S. M.
Laboratory Procedures for Evaluating High-Temperature Corrosion Resistance of Gas Turbine Alloys [70-WA/CD-2] (*A*).....Ap 65

Dee, J. B.
Gas-Cooled Fast Breeder Reactor Designs [71-NE-2] (*A*).....Jl 42

Deevy, W. J.
Unifying the Profession (*C*).....O 66

Defense Program
See United States

Deflection
Interaction of a Heated Jet with a Deflecting Stream [71-HT-2] (*A*).....O 60
Large Deflections of a Linearly Viscoelastic Shallow Spherical Shell [71-APMW-28] (*A*).....N 57
Large Sideward Deflections of Two-Hinged Circular Arches [71-DE-E] (*A*).....Jl 48
Nonlinear Deflection Analysis for Coupled Tubular Structures [71-DE-F] (*A*).....Jl 48

Deformation
Analyses of Axisymmetric Upsetting and Plane-Strain Side-Pressing of Solid Cylinders by the Finite Element Method [70-WA/Prod-4] (*A*) Mr 59
The Effect of Pulse Shape on the Dynamic Plastic Deformation of Reinforced Circular Cylindrical Shells [71-PVP-31] (*A*).....Ag 53
The Effects of Shear Deformation and Rotary Inertia on the Lateral Frequencies of Cantilever Beams in Bending [71-Vibr-79] (*A*).....D 52
The Free Plastic Compression of Pure Metals [70-WA/APM-10] (*A*).....My 58
On the Fundamental Mechanism of Large Strain Plastic Deformation, Electron Microscopy of Metal Cutting Chips [70-WA/Prod-11] (*A*) Mr 60
Large Deformation Analysis of the Arterial Cross Section [70-WA/BHF-15] (*A*).....Ap 63
Local and Gross Deformations in Cracked Metallic Plates and an Engineering Ductile Fracture Analysis [71-PVP-52] (*A*).....S 48
Mechanics of Tool-Workpiece Engagement and Incipient Deformation in Machining of 70/30 Brass [71-Prod-4] (*A*).....Jl 48
Plane Deformations of Incompressible Fiber-Reinforced Materials [71-APM-V] (*A*).....O 60
Shear Front-Lamella Structure in Large Strain Plastic Deformation Processes [71-Prod-1] (*A*) Jl 48
Stress Resultants and Out-of-Plane Deformations in Stiff Rings Attached to Elastic Cylinders and Subject to Concentrated Loads [70-WA/PVP-1] (*A*).....F 76
A Theoretical Approach to Creep Deformation During Intermittent Load [71-Met-F] (*A*) Ag 48
Transient Deformation of Slender Rods Impacting Rigid Plates [71-Vibr-93] (*A*).....D 53

Deiler, F. G.
An Inventory of the Biomass—An Ecological Approach to Environmental Surveillance [70-WA/PID-12] (*A*).....M 64

Delaune, D. C.
Seventeen Years Operating Experience with Gas Turbines in a Petrochemical Plant [71-GT-80] (*A*).....Jl 41

Delaware River
Water Quality Management—Delaware River Estuary [70-WA/PID-6] (*A*).....Mr 63

Demeter, J. J.
NO_x Emissions at Low Excess-Air Levels in Pulverized-Coal Combustion [70-WA/APC-3] (*A*).....F 68

Demski, R. J.
Corrosion of Heat-Exchange Tubes in a Simulated Coal-Fired MHD System [70-WA/CD-3] (*A*) Ap 64

Denavit-Hartenberg Notation
A Generalized Symbolic Notation for Mechanisms [70-Mech-19] (*A*).....Ja 47

Den Hartog, Jacob P. delivers Robert Henry Thurston Lecture at 1970 WAM: [excerpts] Steady Eddies and Other Shaky Cases..Ja 78

Denhard, E. E.
Austenitic Stainless Steels with Unusual Mechanical and Corrosion Properties [71-Pet-38] (*A*) D 51

Denhard, W. G.
Ball Bearings: Cost vs. Value [based on 70-DE-48] Mr 20

Denker, B. L. receives Outstanding Leadership Award from Metropolitan Section of ASME Jl 75

Dennis, C. S. deceased.....N 93

Denny, V. E.
Laminar Film Condensation from a Steam-Air Mixture Undergoing Forced Flow Down a Vertical Surface [71-HT-E] (*A*).....N 58

Density
The Channel Flow of a Density-Stratified Fluid About Immersed Bodies [71-FE-23] (*A*)...S 52
Fundamental and Higher-Mode Density-Wave Oscillations in Two-Phase Flow: The Importance of the Single-Phase Region [71-HT-13] (*A*) O 62

Denver
Regional Council of Governments
Denver Mass Transit Plan (*NB*).....Ag 67

Depew, C. A.
Heat Transfer Due to Combined Free and Forced Convection in a Horizontal and Isothermal Tube [71-HT-3] (*A*).....O 61

Deposits
The Role of Chloride in the Corrosion Caused by Flue Gases and Their Deposits [70-WA/CD-1] (*A*).....Ap 64

Desai, P. V.
Dynamic Behavior of a Switching Jet in a Model Bistable Fluidic Device [70-WA/Flcs-20] (*A*) Je 44

Desalination
Controlled Flash Evaporation.....My 27
Desalination Test Plant (*OS*).....N 44
New Desalination Plant (*OS*).....Mr 52
New Desalting Plant (*OS*).....Jl 34
Power in the Year 2001
Part 2—Thermal Sea Power.....O 21
Water Desalination Module (*NR*).....Mr 70

Desantis, M. J.
Theoretical Analysis of Laminar Pipe Flow in a Porous Wall Cylinder [70-WA/Flcs-3] (*A*) Je 43

Design Cost
Low Cost Short Life Gas Turbine Design [71-GT-69] (*A*).....Jl 40

Design Engineering
See also Automation; Systems Design; Vibration
Advanced Composites Efforts—A Status Report of Air Force Programs with Graphite Reinforced Composites [71-DE-13] (*A*).....Jl 46
Advanced Design Concepts for High Speed Bearings [71-DE-50] (*A*).....Ag 47
AGMA Standards as Engineering Tools for the Rating, Design, Production, and Inspection of Gearing [71-DE-14] (*A*).....Jl 46
Applications of Self-Organizing and Learning Control to Aeronautical and Industrial Systems [71-DE-22] (*A*).....Jl 46

Design Engineering (*Continued*)
Ball Bearings: Cost vs. Value [based on 70-DE-48] Mr 20
Biomedical Materials Compatibility and the Design Challenge [71-DE-8] (*A*) ..... Jl 45
Computer Aided Mathematical Analysis of Fluid Power Systems [71-DE-29] (*A*) ..... Jl 47
The Computer as a Design Tool [71-DE-43] (*A*) Ag 47
Control of Machines by Conversational Speech [71-DE-7] (*A*) ..... Jl 45
Controlling Structural Fatigue Through Adhesive Bonding [71-DE-27] (*A*) ..... Jl 47
Coordinating Work of Manufacturing Engineering with Design Engineering [71-DE-40] (*A*) Ag 46
The Design and Application of the Traversing Infrared Inspection System (TIRIS) [71-DE-37] (*A*) ..... Ag 46
Design of an Effective Work-Order System [71-DE-10] (*A*) ..... Jl 45
Design of Rotating Disks with Integral Shafts [70-WA/DE-6] (*A*) ..... F 66
Design Optimization Using Computer Techniques [based on 70-DE-41] ..... Ja 22
A Design Oriented Approach to Creep and Plasticity in Finite Element Programs [70-WA/DE-4] (*A*) ..... F 65
Designing an Advanced Marine Corer [based on 69-WA/UnT-13]
Marine Coring (*C*) ..... F 77
Designing for Wear Characteristics of Members in Sliding Mechanisms [71-DE-39] (*A*) ..... Ag 46
Developing Composites for Torsional Damper-Spring Systems [71-DE-31] (*A*) ..... Jl 47
Dynamic Loads on Spur Gear Teeth by Analog Computation [71-DE-26] (*A*) ..... Jl 46
The Dynamics of Gear Pair Systems [71-DE-23] (*A*) ..... Jl 46
Economies of the Small Terminal Linked to a Time-Sharing Facility [71-DE-45] (*A*) ..... Ag 47
Effects of Axial Torque on Rotor Response: An Experimental Investigation [70-WA/DE-14] (*A*) ..... F 67
Electroplating and Electroless Plating of Plastics [71-DE-35] (*A*) ..... Jl 47
Engineering: What Does the Future Hold? [based on 71-DE-30] ..... S 19
What Does the Future Hold for the Engineer? [71-DE-30] (*A*) ..... Jl 47
Engineering a Better Environment
1: Environmental Dangers Challenge Design Engineers [based on 70-DE-79]
Compatibility (*C*) ..... F 77
Conserving Water (*C*) ..... Ja 56
The Engineer's Knowledge: Is It Transferable from One Industry to Another? [based on 71-DE-28] ..... O 86
Shifting from One Industry to Another; How Transferable Is the Engineer's Knowledge? [71-DE-28] (*A*) ..... Jl 47
Evaluating the Interactions of Electrostatic Fields with Fluid Flows [71-DE-41] (*A*) ..... Ag 46
Evaluation of Machinability and Machining Parameters of Cold Formed Steel Parts [71-DE-42] (*A*) ..... Ag 46
Failure Analysis of a Rotating Assembly [71-DE-17] (*A*) ..... Jl 46
Failure Distributions of Mechanical Versus Electrical Components [71-DE-34] (*A*) ..... Jl 47
Fretting and Fretting-Fatigue in Metal-to-Metal Contacts [71-DE-38] (*A*) ..... Ag 46
Friction-Instability: A New Design Parameter for Brakes [71-DE-K] (*A*) ..... Jl 48
Gear Design: Dynamic Loads [based on 71-DE-1] O 29
Dynamic Loads on Gear Teeth, Design Applications [71-DE-1] (*A*) ..... Jl 44
On Half Harmonics [70-WA/DE-16] (*A*) ..... F 67
Industrial Design: Its Role in Cost Reduction [based on 71-DE-25] ..... D 23
The Role of Industrial Design in Cost Reduction [71-DE-25] (*A*) ..... Jl 46
The Influence of EHD Lubrication on Rolling Bearing Selection and Design [71-DE-3] (*A*) Jl 44
Infrared Spectrophotometry as a Quality Control Tool [71-DE-44] (*A*) ..... Ag 47
Instant Retrieval System for Drawings [71-DE-19] (*A*) ..... Jl 46
Keys to Developing Machines with High-Level Artificial Intelligence [71-DE-21] (*A*) ..... Jl 46
Large Sideward Deflections of Two-Hinged Circular Arches [71-DE-E] (*A*) ..... Jl 48
Materials Selection for Design of Pollution Control Equipment [71-DE-12] (*A*) ..... Jl 45
A Mathematical Programming Approach to the Design of a Transmission [71-DE-16] (*A*) ..... Jl 46
A Mechanical Engineer Looks at EMI/RFI Shielding [70-WA/DE-13] (*A*) ..... F 67
Modeling Dimensions and Tolerances by Simulation [71-DE-5] (*A*) ..... Jl 44
A New Method of Screw Strength Calculation [71-DE-G] (*A*) ..... Jl 48
Noise Abatement in Industry
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Application of a Disorder Measure to Acoustical and Structural Models [70-WA/DE-1] (*A*) F 65, Ap 55
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Multiple Excitations of Structures and Enclosures [70-WA/DE-8] (*A*) .. F 66, Ap 55
Response and Internal Noise of a Fuselage to Random Excitation [70-WA/DE-9] (*A*) F 66, Ap 55
Response of Structures to Nonhomogeneous Random Pressure Fields [70-WA/DE-11] (*A*) ..... F 66, Ap 56
Sound and Vibration Transmission Through Panels and Tie Beams Using Statistical Energy Analysis [70-WA/DE-2] (*A*) F 65, Ap 55
Sound Transmission Through an Elastic Enclosure Acoustically Closely Coupled to a Noise Source [70-WA/DE-12] (*A*) F 67, Ap 56
Underwater Behavior of Free-Flooded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
Vibration Response and Wave Propagation in Periodic Structures [70-WA/DE-3] (*A*) F 65, Ap 55
Nonlinear Deflection Analysis for Coupled Tubular Structures [71-DE-F] (*A*) ..... F 48
Normal Mode Solution for the Vibrational Motions of Long Flexible Booms on the RAE Satellite [71-DE-J] (*A*) ..... Jl 48
The Octave Band Vibration Analyzer as a Machinery Defect Indicator [71-DE-47] (*A*) .. Ag 47
The Optimum Design of Spatial Frames Using the Method of Constrained Steepest Descent with State Equations [71-DE-H] (*A*) ..... Jl 48
Painting of Plastics [71-DE-36] (*A*) ..... Ag 45
Pollution Control, Product Safety, Small Computers, "Intelligent" Machines, Superplastic Alloys Featured at ASME Design Engineering Conference, 1971 ..... Je 70
Processing Revisions of Specifications in Engineering [71-DE-46] (*A*) ..... Ag 47
Safety Considerations in the Selections of Switches and Relays [71-DE-33] (*A*) ..... Jl 47
A Seal User Looks at Improving Dynamic Seal Application [71-DE-9] (*A*) ..... Jl 45
Simplified Techniques for Personal Filing and Retrieval of Engineering Information [71-DE-48] (*A*) ..... Ag 47
Solid-State A-C Variable Speed Drives [based on 70-DE-9]
Rapid Transit Progress (*C*) ..... F 77
The Solid-State Lamp [based on 71-DE-6] .... N 22
Solid-State Light Sources [71-DE-6] (*A*) ... Jl 45
Stress Analysis of Composite Structures [71-DE-2] (*A*) ..... Jl 44
Techniques to Produce Short-Term Profitability in Research and Development Operations [71-DE-15] (*A*) ..... Jl 46
Thermal Buckling and Snapping of a Circular Ring [71-DE-B] (*A*) ..... Jl 48
Three-Dimensional Analysis of Hypoid Gears [71-DE-D] (*A*) ..... Jl 48
Thyristor Power Systems and Their Applications [71-DE-11] (*A*) ..... Jl 45
Time Domain Optimization of a Vibration Absorber [70-WA/DE-5] (*A*) ..... F 66
The Transition Requirements from Engineer to Entrepreneur—Where Management Goes Wrong [71-DE-24] (*A*) ..... Jl 46
Traveling Waves in Rotating Cylindrical Shells [71-DE-A] (*A*) ..... Jl 47
Design Engineering Conference
Pollution Control, Product Safety, Small Computers, "Intelligent" Machines, Superplastic Alloys Featured at ASME Design Engineering Conference, 1971 ..... Je 70
Design Problem Contest
See Contests
Design Procedure
A Design Procedure for a Class of Distributed Parameter Control Systems [70-WA/Aut-6] (*A*) ..... F 69
de Silva, B. M. E.
Application of Optimal Control Theory to Some Structural Optimization Problems [71-Vibr-66] (*A*) ..... N 53
Desorption
Dominant Mechanisms in the Combustion of Coal [70-WA/Fu-2] (*A*) ..... F 75
Detection, Detectors
See also Manned Space Station
Atmospheric Pollution Measurement (*NTB*) .. N 39
Concealed Weapon Detector (*BTR*) ..... S 36
The Design, Performance, and Some Applications of a Non-Electronic Solar Tracker [70-WA/Sol-2] (*A*) ..... F 64
Eddy-Current Flaw-Tester (*OS*) ..... My 51
Flying Spot Flaw Detector (*OS*) ..... N 45
GEOALERT Warning System (*NB*) ..... N 69
Holographic Detection of Microcracks [71-Met-C] (*A*) ..... Ag 48
Infrared Detection of Gaseous Effluents (*BTR*) Mr 48
A Newly Developed Output Detector for Fluidic Devices [70-WA/Flcs-7] (*A*) ..... Je 43
The Octave Band Vibration Analyzer as a Machinery Defect Indicator [71-DE-47] (*A*) .. Ag 47
Pollution Warning System (*OS*) ..... Ap 53
Vibration Detection Using Lasers (*NTB*) .... S 40
Visual Detection of Holes in Thin Polymeric Films (*NTB*) ..... F 50
Detroit Edison Co. names new headquarters building in honor of ASME Past President Walker Cisler ..... My 88
Deuster, Ralph W. appointed manager of newly organized Reactor Fuels Division of Nuclear Fuel Services, Inc., Rockville, Md. ..... Je 77
Development
See also Research and Development
R & D Forecast (*BTR*) ..... Mr 51
de Vries, G.
The Application of the Finite-Element Technique to Potential Flow Problems [71-APM-22] (*A*) S 57
de Winter, Francis
On Professionalism (*C*) ..... F 77
Diamonds
See also Triamonds
Man-Made Gem Diamonds (*BTR*) ..... F 58
New Facet to Diamond Polishing (*BTR*) .... D 40
Dibelius, N. R.
Reduction of Nitrogen Oxides from Gas Turbines by Steam Injection [71-GT-58] (*A*) ..... Ag 46
Diebold Research Program
Minicomputer Trend, Topic at 24th Plenary Meeting of Diebold Research Program (*NB*) Ja 62
Dieker, E. V.
Two Years Experience in Handling and Burning No. 6 Low Sulfur Fuel Oil [71-IPwr-5] (*A*) .. S 53
Dies
An Approach to Die Design in Extrusions [70-WA/Prod-16] (*A*) ..... Mr 61
Boon for Management: Computerized Die Design S 21
Unconfined Elastomer Die Blanking [based on 71-Prod-6] ..... D 12
Unconfined Elastomer Die Blanking [71-Prod-6] (*A*) ..... Jl 49
Diesel and Gas Engine Power
See Engines
Dietiker, F. D.
High-Capacity Stockpiling and Reclaiming [70-WA/MH-6] (*A*) ..... My 53
Dietrich, M. W.
Rolling-Element Fatigue and Lubrication with Fluorinated Polyethers at Cryogenic Temperatures [70-Lub-17] (*A*) ..... Ja 44
Dietz, Albert G. H. selected to receive International Award in Plastics Science and Engineering given annually by Society of Plastics Engineers ..... Je 77
Diffusers
On the Behavior of Uniform Shear Flow in Diffusers and Its Effects on Diffuser Performance [71-GT-5] (*A*) ..... Ag 44
Investigation Concerning the Fluid Flow in the Mixed-Flow Diffuser [71-GT-40] (*A*) ..... Jl 38
More the Merrier (*PB*) ..... F 60
Noise Abatement in Industry
Gas Turbine Noise Abatement
On the Noise from Jet Diffusers [70-WA/GT-5] (*A*) ..... Ap 56
Two-Dimensional Diffuser Performance with Subsonic, Two-Phase, Air-Water Flow [71-FE-20] (*A*) ..... S 51
Dijksman, E. A.
Six-Bar Cognates of Watt's Form [70-Mech-30] (*A*) Ja 49
A Strong Relationship Between New and Old Inversion Mechanisms [70-Mech-9] (*A*) ... Ja 46
Dil Pare, A. L.
A Computer Algorithm to Design Compound Gear Trains for Arbitrary Ratio [70-Mech-31] (*A*) ..... Ja 49
Dimarogonas, A. D.
Synthesis of a Geared N-Bar Linkage [70-Mech-24] (*A*) ..... Ja 48
Dimensions
Modeling Dimensions and Tolerances by Simulation [71-DE-5] (*A*) ..... Jl 44

Diodes
See LED
Directories
See Literature
Discharging
Thermal Discharges—An Engineering Problem [70-WA/PID-5] (*A*) ..... Mr 63
Disciplines
See Engineering Disciplines
Disks
Application of Holographic Techniques to Turbine Disk Vibration [71-Vibr-105] (*A*) ..... D 54
An Asymptotic Solution of a Rotating Disk [71-APM-Q] (*A*) ..... O 59
Design of Rotating Disks with Integral Shafts [70-WA/DE-6] (*A*) ..... F 66
Experimental Effort on Bursting of Constrained Disks as Related to the Effective Utilization of Yield Strength [71-PVP-49] (*A*) ..... S 48
Experimental Study on the Dynamics of a Gas-Levitated Disk [71-APM-3] (*A*) ..... S 55
Integral Method for Flow Between Corotating Disks [70-WA/FE-4] (*A*) ..... F 72
Performance of a Rotating Flat-Disk Wiped-Film Evaporator [71-HT-37] (*A*) ..... N 57
The Resistance to Rotation of Free and Enclosed Disks [71-APM-25] (*A*) ..... S 57
12 percent Chromium Steel Disks for Industrial Gas Turbines [71-GT-39] (*A*) ..... Jl 38
Dislocation
Displacement and Plastic Distortion Fields Produced by Dislocations in Anisotropic Media [71-APM-17] (*A*) ..... S 56
Dispensers
Self-Sealing Closure (*NTB*) ..... O 44
Dispersion
The Dispersion of Matter in Turbulent Pipe Flows [70-WA/FE-14] (*A*) ..... F 73
Plume Rise and Dispersion in a Local Wind System [70-WA/Fu-1] (*A*) ..... F 75
Variational Methods for Dispersion Relations and Elastic Properties of Composite Materials [71-APMW-21] (*A*) ..... N 56
Displacement
Application of Direction Cosines to Iterative Displacement Synthesis of a Locked Linkage in Space [70-Mech-78] (*A*) ..... Ja 53
Automated Generation of Equations for Displacement Analysis of Spatial Mechanisms [70-Mech-43] (*A*) ..... Ja 50
Closed-Form Displacement Relations of a Five-Link R-R-C-C-R Spatial Mechanism [70-Mech-35] (*A*) ..... Ja 49
Differential Displacement Matrices and the Generation of Screw Axis Surfaces in Kinematics [70-Mech-1] (*A*) ..... Ja 45
The Elastic Strip with Prescribed End Displacements [71-APMW-24] (*A*) ..... N 57
Evaluation of Structural Dampers Under Linear or Sinusoidal Displacement Control [71-Vibr-46] (*A*) ..... N 52
On Half Harmonics [70-WA/DE-16] (*A*) ..... F 67
Nonstationary Quasi-Static Thermal Displacements and Thermal Stresses in a Cylindrical Body of Finite Height Subject to Convective Heat Losses [71-APM-D] (*A*) ..... O 59
Distillates
The Combustion of Heavy Distillate Fuels in Heavy Duty Gas Turbines [71-GT-56] (*A*) .. Jl 39
Gas Turbine Testing on Naval Distillate Fuel [71-GT-62] (*A*) ..... Jl 39
Distortion
Displacement and Plastic Distortion Fields Produced by Dislocations in Anisotropic Media [71-APM-17] (*A*) ..... S 56
Distribution
Ten Years' Progress in Management, 1960–1970
III: General and Operations Management
Physical Distribution—A New Dimension of Management Control [70-WA/Mgt-13] (*A*) Mr 58
DiTaranto, R. A.
Resonance Response Criteria of a Damped Three-Layered Beam [71-Vibr-102] (*A*) ..... D 54
Diving
High Diver Impacts on GM (*BTR*) ..... Ap 43
Dix, R. C.
Simulation of the Dynamics of Machinery [71-Vibr-111] (*A*) ..... D 55
Dix, Willard A. promoted to vice-president of engineering, Integrated Electronics Corp. O 90
Dixon, J. R.
Engineering a Profession [70-WA/Av-3] (*A*) .. F 68
Dobyne, S. A. deceased ..... S 99
Docks
C-5 Galaxy
128-Ton Payload (*PB*) ..... Ja 38
Dodd, John A. deceased ..... Ap 88
Dodd, V. R.
The Story of a Synthesis Gas Compressor Failure [71-Pet-31] (*A*) ..... D 50
Dodge, F. T.
Free-Surface Vibrations of a Magnetic Liquid [71-Vibr-24] (*A*) ..... N 50
Dodge, T. A.
Minor Details Influence Useful Life of Packaged Reciprocating Compressor Unit [71-Pet-41] (*A*) D 51
Doepker, P. E.
Rolamite—A Tool in Hysteresis Measurement [71-Vibr-27] (*A*) ..... N 50
Dokainish, M. A.
A New Approach for Plate Vibrations: Combination of Transfer Matrix and Finite-Element Technique [71-Vibr-85] (*A*) ..... D 53
Dolan, R. B.
The "Johnson-Sea-Link"—The First Deep-Diving Welded Aluminum Submersible [70-WA/UnT-6] (*A*) ..... Je 45
Domis, W. F.
Creep and Creep-Rupture Properties of Types 304N and 316N Stainless Steels [71-Pet-34] (*A*) D 50
Donaldson, R. R.
Minimum Squeeze Film Thickness in a Periodically Loaded Journal Bearing [70-Lub-12] (*A*) .. Ja 43
Doornink, D.
Transient Combined Conductive and Radiative Heat Transfer [71-HT-22] (*A*) ..... O 62
Doppler
Laser Doppler Measures Fluid Velocity (*NTB*) Ag 37
Doss, E. L. deceased ..... O 91
Dovman, Barnet deceased ..... My 91
Dow Chemical Co.
Salt Grass Power Plant, Texas
Largest Ever Single Gas Turbine (*BTR*) .. Je 29
Dowell, E. H.
Free Vibrations of a Linear Structure with Arbitrary Support Conditions [71-APM-6] (*A*) .. S 55
Dowle, W. R.
Strain Histories and Strain Distributions in a Cup Drawing Operation [70-WA/Prod-6] (*A*) .. Mr 59
Downham, E.
The Rationale of Monitoring Vibration on Rotating Machinery in Continuously Operating Process Plant [71-Vibr-96] (*A*) ..... D 53
Dows, Harold W. receives ASME 50-year pin Ag 85
Doyle, J. M.
Hydraulically Damped Motion of Gondola Cars [70-WA/RR-4] (*A*) ..... Je 42
Drafting
The Autotape/Autocheck System [71-Vibr-61] (*A*) N 53
Drag
Drag Force Measurements of a Compressible Turbulent Boundary Layer on an Adiabatic Smooth Flat Plate [70-WA/FE-26] (*A*) .... F 74
Engineering a Better Environment
2: High-Speed Interurban Transportation Systems
Fast Transit Link [based on 69-WA/PID-11]
Fast Transit Link (*C*) (*D*) (*AC*) .... Mr 66
Skin Friction Drag and Velocity Profile Measurement Techniques in Two-Phase Flow [71-FE-32] (*A*) ..... S 52
Draining
Velocity Distribution in the Liquid Film During Draining on a Cylindrical Surface [71-APM-J] (*A*) ..... O 60
Drake, F. B. deceased ..... D 83
Drake, Robert M., Jr. elected to newly established post of corporate vice-president—research and development for Combustion Engineering, Inc. ..... D 80
Draper, Charles Stark receives Elmer A. Sperry Medal from ASME, IEEE, SAE, SNAME, AIAA at 1970 WAM ..... Ja 76
Drawing
The Prediction of Press Loads in Deep Drawing Titanium 6 Al 4V, Stainless Steel AISI 304, and Inconel X Alloys at Various Conditions of Lubrication at Elevated Temperatures [70-WA/Prod-26] (*A*) ..... Mr 63
Drawings
Instant Retrieval System for Drawings [71-DE-19] (*A*) ..... Jl 46
Speeds Flow of Engineering Data (*BTR*) .... Ja 36
Stereoscopic Drawings Made by Analog Computer of Three Dimensional Surfaces Generated by Spatial Mechanism [70-Mech-38] (*A*) ..... Ja 49
Dreher, G. K. deceased ..... N 93
Drexel, Werner H.
ASME Constitution (*C*) ..... Ap 67
Drexel University
Air Resources Training (*EN*) ..... O 75
Drexel University Evening College Alumni Association's 20-Year Award (1971) goes to Jesse LeCoff ..... Jl 74
Dreyfus, E. D. deceased ..... N 93
Drills, Drilling
Air-Cushioned Drill (*BTR*) ..... O 47
Application of Tungsten Carbide to Oilfield Rotary Drill Bits [71-Pet-21] (*A*) ..... D 49
Designing an Advanced Marine Corer [based on 69-WA/UnT-13]
Marine Coring (*C*) ..... F 77
"Drilled Ball" Bearings (*NTB*) ..... F 51
Drilling Riser Stress Measurements [71-Pet-1] (*A*) D 47
Dynamometer for Drilling Force Measurement [71-Prod-7] (*A*) ..... Jl 49
The Laser in Aerospace (*BTR*) ..... My 43
Modification of Drill Point for Reducing Thrust [71-Prod-12] (*A*) ..... Jl 49
Under the Deep-Sea Bed (*OS*) ..... F 63
Dring, R. P.
A Momentum-Integral Analysis of the Three-Dimensional Turbine End-Wall Boundary Layer [71-GT-6] (*A*) ..... Ag 44
Drive, Drivers
An Application of Boolean Algebra to the Motion of Epicyclic Drives [70-Mech-28] (*A*) ..... Ja 48
Iron Mascot (*BTR*) ..... D 37
Reverse Reduction Marine Drive for High Powered Gas Turbines [71-GT-82] (*A*) .... Jl 41
Selecting the Economic Driver System for Large Compressors [71-Pet-32] (*A*) ..... D 50
Slow-Speed Drives for Miniature Devices (*NTB*) Ja 34
Small Hydraulic Turbine Drives (*NTB*) ..... F 51
Solid-State A-C Variable Speed Drives [based on 70-DE-9]
Rapid Transit Progress (*C*) ..... F 77
Droplets
The Effect of Droplet Solidification Upon Two-Phase Nozzle Flow [71-FE-11] (*A*) ..... Ag 54
Droughton, J. V.
The Channel Flow of a Density-Stratified Fluid About Immersed Bodies [71-FE-23] (*A*) .... S 52
Drucker, Peter F. (*Henry B. Towne Lecturer at* 1970 *WAM*) ..... Ja 77
Ten Years' Progress in Management, 1960–1970
II: Management's Social Responsibilities
The Price of Success—Management Leadership in a Pluralistic Society [70-WA/Mgt-14] (*A*) Mr 57; [excerpts] ..... Ja 77
Drums
382-Ton Steam Drum (*PB*) ..... Ja 38
Drying
Freeze-Drying of Bodies Subject to Radiation Boundary Conditions [71-HT-5] (*A*) ..... O 61
D'Souza, A. Frank
Legal and Moral Responsibilities of Engineers Toward Public Safety [70-WA/Av-2] (*A*) .. F 68
Dubai
Underwater Storage Tank (*OS*) ..... Mr 53
Dubey, R. N.
Variational Method for a Pseudoplastic Fluid in a Laminar Boundary Layer over a Flat Plate [70-WA/APM-39] (*A*) ..... Je 47
Yield Criteria and the Bauschinger Effect for a Plastic Solid [71-Met-P] (*A*) ..... S 55
Dubowsky, S.
Dynamic Analysis of Mechanical Systems with Clearances
Part 1: Formation of Dynamic Model [70-Mech-64] (*A*) ..... Ja 53
Part 2: Dynamic Response [70-Mech-65] (*A*) Ja 53
Dubuc, J.
Cumulative Fatigue Damage Under Stress-Controlled Conditions [71-Met-M] (*A*) ..... S 54
Ductility
Notch-Ductility Transition of Structural Steels of Various Yield Strengths [71-PVP-19] (*A*) .. Ag 52
Relationship Between Plane-Strain Ductility and K_{Ic} for Various Steels [71-PVP-13] (*A*) .. Ag 51
Ducts
Aerodynamic Approximations for Unsteady Supersonic Flow Through Ducts of Revolution [71-Vibr-23] (*A*) ..... N 50
Low Reynolds Number Turbulent Flow in Large Aspect Ratio Rectangular Ducts [71-FE-A] (*A*) S 53
Duffield, R. C.
Parametric Resonance of Stiffened Rectangular Plates [71-APM-26] (*A*) ..... S 57
Dugundji, J.
Nonlinear Vibrations of a Beam Under Harmonic Excitation [70-WA/APM-13] (*A*) ..... My 53
Nonlinear Vibrations of a Buckled Beam Under Harmonic Excitation [70-WA/APM-48] (*A*) Je 48
Duke University
Civil Engineering Department
Short Courses Offered on ELAS Program (*EN*) D 69
Dunaway, Frank R., Jr.
Ten Years' Progress in Management, 1960–1970
I: Management, An Appraisal and Overview
Beyond Salary—Executive Compensation Past and Present [70-WA/Mgt-1] (*A*) .... Mr 56

Dunkle, Kenneth T. named manager of new Manatee project (800-MW central power station) being designed for Florida Power and Light by Brown and Root, Inc., Chicago Engineering Div. ..... Je 77
du Plessis, M. P.
Measurement of the Characteristic Impedance of Fluidic Lines [70-WA/Flcs-14] (*A*) ..... Je 44
Du Pont Co.
$300 Million for Pollution Control (*NB*) ..... Je 58
Duprey, F. R. deceased ..... Jl 78
Dupuis, G.
Application of Ritz's Method to Thin Elastic Shell Analysis [71-APM-32] (*A*) ..... O 59
Duquesne Light Co.
Westinghouse to Supply Nuclear Equipment (*NB*) D 67
Durability
Iron Mascot (*BTR*) ..... D 37
Low Cost Short Life Gas Turbine Design [71-GT-69] (*A*) ..... Jl 40
Durand, R. E.
LMFBR Availability Considerations [71-NE-14] (*A*) ..... Jl 44
Durelli, A. J.
Stresses in a Pressurized Ribbed Cylindrical Shell with a Reinforced Circular Hole Interrupting a Rib [71-PVP-8] (*A*) ..... Ag 51
Duren, C.
The Effects of Vanadium in High Strength Low Alloy Steels [71-Pet-5] (*A*) ..... D 47
Durham, T.
Craniometric Measurements of Human Skulls [70-WA/BHF-8] (*A*) ..... Ap 63
Durland, M. A. dean emeritus of College of Engineering, Kansas State University, Manhattan, recognized with special certificate of appreciation for more than 48 years of outstanding service ..... Jl 74
Durland, W. P. deceased ..... N 93
Duzy, Albert F. joins staff of Paul Weir Co. O 89
Dyer, D. F.
Freeze-Drying of Bodies Subject to Radiation Boundary Conditions [71-HT-5] (*A*) ..... O 61
Dynamics
Applications of Holography to Dynamics: High-Frequency Vibrations of Beams [70-WA/APM-5] (*A*) ..... My 57
Bounds on Motions of Some Lumped and Continuous Dynamic Systems [71-APMW-3] (*A*) N 55
Calculation of Correlation Matrices for Linear Systems Subjected to Nonwhite Excitation [71-APMW-10] (*A*) ..... N 55
Some Further Contributions to the Dynamic Sensitivity of the Parameter Perturbation Process [70-WA/Aut-5] (*A*) ..... F 69
Large Amplitude Vibration of a Circular Plate with Concentric Rigid Mass [71-APMW-11] (*A*) N 55
Measurement of the Dynamic Characteristics of a Large Sleeve Bearing [70-Lub-14] (*A*) ..... Ja 44
The Merit of Different Error Minimization Criteria in Approximate Analysis [71-APMW-8] (*A*) N 55
Simulation of the Dynamics of Machinery [71-Vibr-111] (*A*) ..... D 55
A Theoretical Study of the Dynamic Behavior of Foil Bearings [70-Lub-5] (*A*) ..... Ja 42
Theory of the Dynamic Vibration Neutralizer with Motion-Limiting Stops [71-APMW-14] (*A*) N 56
Dynamometers
Dynamometer for Drilling Force Measurement [71-Prod-7] (*A*) ..... Jl 49
Transmission Dynamometers (*OS*) ..... F 62

E

Earth
Does Man's Release of Energy Contribute to the Melting of the Polar Ice Caps or Does It Move the Earth Toward Another Ice Age? [70-WA/APC-1] (*A*) ..... F 68
Earthquakes
Of Dams and 'Quakes (*BTR*) ..... O 42
East (Leo H.) Memorial Award
See Honors
Eaton, H. N. deceased ..... S 99
Ebadi, Y. M.
Investigations of the Substitution of Isothermal Fabrication Programs for Last Pass Temperature Control Programs [71-Met-2] (*A*) ..... Ag 48
Ebeling, D. G.
Tolerance Analysis of Mechanisms Using PA-300: A General Probabilistic Problem Solving Language [70-Mech-44] (*A*) ..... Ja 50
Ebersole, Robert
Three-Day Mission Biosatellite Thermal Control System Design and Flight Performance [71-Av-33] (*A*) ..... O 58
Ebert, H. E.
Resistance of Some Standard Compressor Materials to Hydrogen Sulfide Stress-Corrosion [71-Pet-25] (*A*) ..... D 50
Ebert, L. J.
Phase Transformation Effects on the Bending Stress Distributions in Carburized Steel Components [71-Met-H] (*A*) ..... S 54
Eby, R. J.
Thermal Control of ATS F & G [71-Av-28] (*A*) O 57
Eck, D. L.
Large Engines—Analyze Before Fabricating [71-DGP-7] (*A*) ..... Ag 48
Eckert, E. R. G.
Free-Stream Turbulence Effects on Local Heat Transfer from a Sphere [71-HT-8] (*A*) ..... O 61
Eckhardt, Henry
Evolution and Technology (*C*) ..... Jl 52
Eckman (Donald P.) Award
See Honors
Eclipses
Seven-Minute Solar Eclipse (*NB*) ..... N 68
Ecology
Beneficial Uses of Waste Heat [70-WA/Ener-10] (*A*) ..... Ap 62
Ecologic and Economic Benefits of the Power Recovery Gas Expander [71-Pet-11] (*A*) ..... D 48
Ecology Project (*NB*) ..... Mr 73
Engineering a Better Environment
1: Environmental Dangers Challenge Design Engineers
Compatibility (*C*) ..... F 77
Conserving Water (*C*) ..... Ja 56
7: The Environment-Energy Balance: Needed Actions ..... My 33
Environment-Energy Balance (*C*) Jl 51; Ag 56
9: Waste Heat Uses Cut Thermal Pollution [based on 70-WA/Ener-6] ..... Jl 15
Waste Heat Uses (*C*) (*AC*) ..... O 66
Uses of Waste Heat [70-WA/Ener-6] (*A*) Ap 61
An Inventory of the Biomass—An Ecological Approach to Environmental Surveillance [70-WA/PID-12] (*A*) ..... Mr 64
Economic Security
See also Employment
As the President Sees It
The ASME and Economic Security ..... Ja 108
ASME Employment Aids (*C*) ..... My 60
ASME Employment Report: Activities Easing the Engineer Job Pinch
ASME Sections Take Over Member Job Aid Ap 83
Employment Help Wanted (*C*) ..... F 77
The Job Problem (*C*) ..... Ja 53; Ap 67
NSPE Urges Conversion Assistance (*NB*) ..... Je 58
Economics
Engineer Income Level (*NB*) ..... Ap 72
The Environment and Employment (*Ed*) ..... F 11
Evaluating Gas Turbines for Process Applications—Economic Guides for the Decision Maker [71-GT-50] (*A*) ..... Jl 38
Optimization of the Constrained Machining Economics Problem by Geometric Programming [71-Prod-9] (*A*) ..... Jl 49
Solar-Powered Refrigeration [based on 70-WA/Sol-5] ..... Je 22
Economic Aspects of Solar-Powered Absorption Refrigeration [70-WA/Sol-5] (*A*) ..... F 65
Economy
Ecologic and Economic Benefits of the Power Recovery Gas Expander [71-Pet-11] (*A*) ..... D 48
Technology for Tomorrow vs. Profit for Today [1970 Wright Lecture] ..... My 16
Technology vs. Profit (*C*) ..... Jl 52
U. S. Industrial Economy: Outlook—1971
Growth in Sight Following Last Year's Sag—Lessening of Inflation (*NR*) ..... F 83
Air Conditioning ..... F 88
Capital Spending
The General Picture ..... F 89
Chemical Industry ..... F 89
Coal ..... F 88
Computers ..... F 89
Electric Utility Industry ..... F 87
Electrical and Electronic Equipment ..... F 89
Executive Demand ..... F 83
Instrumentation ..... F 88
Materials ..... F 83
Nickel Consumption ..... F 84
Rubber, Plastics Industry ..... F 84
Steel ..... F 84
Eddy
Eddy-Current Flaw-Tester (*OS*) ..... My 51
An Examination of Eddy Viscosity Models for Turbulent Free Shear Flows [71-FE-17] (*A*) Ag 55
Eddy, Harrison P., Jr. named Diplomate of American Academy of Environmental Engineers ..... My 88
Edge, B. L.
An Analysis Technique for Composite Structures Subject to Dynamic Loads [70-WA/APM-23] (*A*) ..... My 59
Edison Electric Institute
Controlled Fusion (*EN*) ..... D 68
Edison Medal
See Honors
Editorials
ASME: Direction for the Future ..... My 15
ASME Goals—A Year Later ..... Ap 15
ASME Updates Legislative Policy ..... Je 9
The Energy Crisis ..... N 13
The Engineer: An Individual ..... D 11
Engineering a Better Environment ..... Ja 9
The Environment and Employment ..... F 11
Power in the Year 2001 ..... S 17
Power in the Year 2001 (*C*) ..... N 60
Wanted: Power Plant Sites ..... Mr 17
Power Plant Sites (*C*) ..... My 60
Your Professional License—An Opportunity ..... O 19
Education
See also American Society for Engineering Education; Engineering; Grants, Study; Salaries; Training; U. S. National Commissions; *specific universities, colleges, other institutions of learning*
Computing Networks (*NB*) ..... D 66
Engineering a Better Environment
7: The Environment-Energy Balance: Needed Actions ..... My 33
Environment-Energy Balance (*C*) Jl 51; Ag 56
Engineering Enrollments Down (*EN*) ..... Ap 73
Engineers Needed to Teach (*EN*) ..... Je 60
The Formal Education of Mechanical Engineers O 37
IIT Students Probe Quality of Life in 21st Century (*EN*) ..... N 70
Liability Prevention Annual Conference
Second, 1971
Preview (*EN*) ..... Ap 73
No Tuition Boiler Seminars (*EN*) ..... D 68
The Role of Private Enterprise in a Post-Industrial Society
1: Education, Technology and Business, A Case Study of Business in the Future—Problems and Opportunities (*TL*) ..... Ag 71
Stevens to Admit Women (*EN*) ..... Ap 73
Ten Years' Progress in Management, 1960–1970
I: Management, An Appraisal and Overview
Education and Training for the Profession of Management 1960–1970 [70-WA/Mgt-9] (*A*) ..... Mr 56
IV: Management Education
Continuing Management Education in the Universities [70-WA/Mgt-6] (*A*) ..... Mr 58
Dilemmas for Business Education in the 1970's [70-WA/Mgt-8] (*A*) ..... Mr 58
Management Education—Industrial, 1960–1969 [70-WA/Mgt-7] (*A*) ..... Mr 58
Workshop on Quality, Performance, and Cost (*EN*) Ap 73
Edwards, D. K.
Volume Interchange Factors for Nonhomogeneous Gases [71-HT-19] (*A*) ..... O 62
Edwards, Frank W. president of Limbaugh Engineers, Inc., retires, concluding 42 years of accomplishments in engineering, education, and private industry ..... Ja 104
Edwards, Harry D. deceased ..... Ja 107
Edwards, J. A.
A Simplified Two-Dimensional Jet Reattachment Model [70-WA/Flcs-8] (*A*) ..... Je 43
Three-Dimensional Turbulent Jet Reattachment [70-WA/Flcs-5] (*A*) ..... Je 43
Edwards, R. G.
Identifying the Engineer (*C*) ..... Je 51
Effluents
Control of Water Pollution from the Discharge of Liquid Effluents of Wet-Collector Type Gas-Cleaning Systems [70-WA/PID-9] (*A*) ..... Mr 64
Infrared Detection of Gaseous Effluents (*BTR*) Mr 48
Egan, Edward F. elected a director of Bowen Engineering, Inc. ..... O 90
Egerer, Herbert
Ten Years' Progress in Management, 1960–1970
II: Management's Social Responsibilities
The Engineer's Responsibility for Product Safety [70-WA/Mgt-3] (*A*) ..... Mr 57
Eggers, P. E.
Development of Cryogenic Heat Pipes [70-WA/Ener-1] (*A*) ..... Ap 60
A Traversing-Thermocouple Technique for the Rapid Measurement of Thermal Conductivity

Eggers, P. E. (*Continued*)
in the Range 300 to 1200 K [70-WA/Ener-2] (*A*) Ap 60

Egle, D. M.
The Resonant Response of a Rectangular Plate with an Elastic Edge Restraint [71-Vibr-6] (*A*) N 48

Egleston (Thomas) Medal
See Honors

Egry, C. Robert deceased ..... Ja 107

Ehrenreich, E.
Dynamometer for Drilling Force Measurement [71-Prod-7] (*A*) ..... Jl 49

Ehrich, F. F.
A Dynamic Model of Gas Turbine Engine Main Combustor Instability [71-GT-73] (*A*) ..... Jl 40
Sum and Difference Frequencies in Vibration of High Speed Rotating Machinery [71-Vibr-103] (*A*) ..... D 54

Eiermann, Harry J. appointed to an administrative post within the U. S. Postal Services Safety Branch in Washington, D. C. .... My 88

Eigenvalue Problems
The Loading Frequency Relationship in Multiple Eigenvalue Problems [71-APM-13] (*A*) .... S 56

Eisenstadt, Melvin M.
High-Speed Ice Train [based on 70-WA/RR-3] Je 14
Coefficient of Friction of Ice at High-Speed—Application to a High Speed Train [70-WA/RR-3] (*A*) ..... Je 42

Eisley, J. G.
Nonlinear Vibration of Buckled Beams [71-Vibr-17] (*A*) ..... N 49

Ejectors
High Entrainment Ejector Design [71-FE-34] (*A*) S 52
Liquid-Vapor Interactions in a Constant-Area Condensing Ejector [71-FE-21] (*A*) ..... S 52

ELAS USERS
Short Courses Offered on ELAS Program at Duke (*EN*) ..... D 69

Elassar, R. J.
An Examination of Eddy Viscosity Models for Turbulent Free Shear Flows [71-FE-17] (*A*) Ag 55

Elasticity
Application of Ritz's Method to Thin Elastic Shell Analysis [71-APM-32] (*A*) ..... O 59
Axisymmetric Elasticity Solutions of Spherical Shell Segments [70-WA/APM-27] (*A*) .... Je 46
Bounds on the Maximum Contact Stress of an Indented Elastic Layer [71-APM-E] (*A*) ... O 60
Combined Elastic-Plastic-Creep Analysis of Two-Dimensional Bodies [71-PVP-30] (*A*) ..... Ag 52
Determination of the Unloading Boundary in Longitudinal Elastic-Plastic Stress Wave Propagation [71-APM-15] (*A*) ..... S 56
Dynamic Analysis of Elastic Link Mechanisms by Reduction of Coordinates [71-Vibr-98] (*A*) .. D 53
Dynamic Response of a Rigid Footing Bonded to an Elastic Half Space [71-APMW-15] (*A*) .. N 56
Dynamic Stability Analysis of Linkages with Elastic Members via Analog Simulation [70-Mech-48] (*A*) ..... Ja 51
Effective Elastic Constants for Thick Perforated Plates with Square and Triangular Penetration Patterns [71-PVP-17] (*A*) ..... Ag 51
Elastic Link Mechanism Dynamics [70-Mech-40] (*A*) ..... Ja 50
Elastic-Plastic Analysis of Thick-Walled Pressure Vessels with Sharp Discontinuities [71-PVP-23] (*A*) ..... Ag 52
Elastic-Plastic Plane Waves with Combined Compressive and Two Shear Stresses in a Half Space [71-APM-10] (*A*) ..... S 56
The Elastic Strip with Prescribed End Displacements [71-APMW-24] (*A*) ..... N 57
Electromagneto-Thermoelastic Plane Waves in Solids with Thermal Relaxation [71-APMW-5] (*A*) ..... N 55
An Experiment on Laser-Generated Stress Waves in a Circular Elastic Ring [71-APMW-2] (*A*) N 55
An Experimental and Nuclear Study of Elastic Strain Waves on the Center Line of a 6061-T6 Aluminum Bar [71-APMW-22] (*A*) ..... N 57
Flow-Induced Instability of an Elastic Tube [71-Vibr-39] (*A*) ..... N 51
Grinding Wheel Elasticity [70-WA/Prod-21] (*A*) Mr 62
Guided Surface Waves on an Elastic Half Space [71-APM-7] (*A*) ..... S 55
Hard Tissue as a Composite Material
Part 1: Bounds on the Elastic Behavior [70-WA/BHF-3] (*A*) ..... Ap 62
Harmonic Response of Masses on an Elastic Half Space [71-Vibr-59] (*A*) ..... N 53
Indentation of an Elastic Layer by an Array of Punches Moving with Steady Velocity [70-WA/APM-30] (*A*) ..... Je 47
On the Initial Speed of Elastic-Plastic Boundaries in Longitudinal Wave Propagation in a Rod [70-WA/APM-50] (*A*) ..... Je 48
Large Amplitude Vibrations of Circular Plate on a Uniform Elastic Foundation [71-Vibr-9] (*A*) N 48
A Mathematical Programming Method for Design of Elastic Bodies in Contact [70-WA/APM-52] (*A*) ..... Je 49
Noise Abatement in Industry
Interaction of Sound and Structures
Sound Transmission Through an Elastic Enclosure Acoustically Closely Coupled to a Noise Source [70-WA/DE-12] (*A*) F 67, Ap 56
Nonlinear Dynamic Response of Elastic Slider-Crank Mechanism [70-Mech-39] (*A*) ..... Ja 50
Normal Impact of an Infinite Elastic Beam by a Semi-Infinite Elastic Rod (70-WA/APM-54] (*A*) Je 48
Reexamination of the Kolsky Technique for Measuring Dynamic Material Behavior [70-WA/APM-31] (*A*) ..... My 59
The Resonant Response of a Rectangular Plate with an Elastic Edge Restraint [71-Vibr-6] (*A*) .. N 48
Response of a Semi-Infinite Elastic Solid to an Arbitrary Line Load Along the Axis [71-APMW-1] (*A*) ..... N 55
Shakedown in Elastic-Plastic Systems Under Dynamic Loadings [71-APMW-27] (*A*) .... N 56
Steady Motion of a Rigid Strip Bonded to an Elastic Half Space [70-WA/APM-56] (*A*) .. Je 49
Stress Analysis of Thin Elasto-Plastic Shells [70-WA/PVP-3] (*A*) ..... F 76
Stress-Intensity Factors for a Surface Crack in a Finite Solid [71-APMW-6] (*A*) ..... N 55
Stress Resultants and Out-of-Plane Deformations in Stiff Rings Attached to Elastic Cylinders and Subject to Concentrated Loads [70-WA/PVP-1] (*A*) ..... F 76
Subharmonic Rotor Instability Due to Elastic Asymmetry [71-Vibr-57] (*A*) ..... N 52
The Suspension Bridge: Its Aeroelastic Problems [71-Vibr-38] (*A*) ..... N 51
A Theoretical Investigation of Compliant Surface Journal Bearings [70-Lub-20] (*A*) ..... Ja 44
Thermal Stresses in an Orthotropic Elastic Semi-space [71-APM-18] (*A*) ..... S 56
Transient Interaction of Spherical Acoustic Waves and a Spherical Elastic Shell [70-WA/APM-29] (*A*) ..... Je 46
Two Edge-Bonded Elastic Wedges of Different Materials and Wedge Angles Under Surface Tractions [70-WA/APM-58] (*A*) ..... Je 49
Unbalance Response of an Elastic Rotor in Damped Flexible Bearings at Supercritical Speeds [70-WA/Pwr-3] (*A*) ..... My 55
Variational Methods for Dispersion Relations and Elastic Properties of Composite Materials [71-APMW-21] (*A*) ..... N 56

Elastics
The Part-Through Surface Crack in an Elastic Plate [71-APM-20] (*A*) ..... S 56

Elastohydrodynamics
Elastohydrodynamic Hertzian Contacts
Part 1 ..... N 14
Part 2 ..... D 17
Fluid Rheological Effects in Sliding Elastohydrodynamic Point Contacts with Transient Loading
1—Film Thickness [70-Lub-21] (*A*) ..... Ja 45
2—Traction [70-Lub-22] (*A*) ..... Ja 45
Oil Film Thickness and Rolling Friction in Elastohydrodynamic Point Contact [70-Lub-2] (*A*) Ja 42
A Thermal Elastohydrodynamic Theory for Individual Asperity-Asperity Collisions [70-Lub-25] (*A*) ..... Ja 45

Elastomers
On Elastomer Mount Design When Machine and Foundation Are Multi-Resonant Structures [71-Vibr-51] (*A*) ..... N 52
Manually Operated Elastomer Heat Pump (*NTB*) Ap 47
Unconfined Elastomer Die Blanking [based on 71-Prod-6] ..... D 12
Unconfined Elastomer Die Blanking [71-Prod-6] (*A*) ..... Jl 49

Elastostatics
On the Plane Elastostatic Problem of a Loaded Crack Terminating at a Material Interface [71-APM-O] (*A*) ..... O 59

Elbows
Analysis of Cracks in Welded Elbows [71-PVP-32] (*A*) ..... Ag 53
Experimental Determinations of Plastic Collapse Loads for Pipe Elbows [71-PVP-37] (*A*) .. Ag 53

Electric Batteries
See Batteries

Electric Car
See Vehicles, Electric

Electric Research Council
The Energy Crisis (*Ed*) ..... N 13
Research and Development Goals Task Force Report for 1970–1971 (*TL*)
"Electric Utilities Industry Research and Development Goals through the Year 2000" N 73

Electric Utility Industry
ASME Panel Examines Progress and Current Needs in Gas Turbine Codes and Standards Ap 77
Coal [1971 outlook] (*NR*) ..... F 88
Electric Utility Industry [1971 outlook] (*NR*) .. F 87
The Energy Crisis (*Ed*) ..... N 13
Engineering a Better Environment
7: The Environment-Energy Balance: Needed Actions ..... My 33
Environment-Energy Balance (*C*) Jl 51; Ag 56
11: Underground Utility Tunnels [based on 70-WA/Ener-11] ..... S 27
Underground Tunnels (*C*) ..... N 62
The Potential Use of Utility Tunnels in Urban Areas [70-WA/Ener-11] (*A*) ..... Ap 62
Fast Breeder Reactors (*NB*) ..... Ja 63
Heavy Oil or Residual Oil—New Opportunity for the Utility Gas Turbine [71-GT-81] (*A*) ... Jl 41
Noise Abatement in Industry
Gas Turbine Noise Abatement
Utility Applications for Advanced Gas Turbines to Eliminate Thermal Pollution [71-WA/GT-9] (*A*) ..... Ap 56
Nuclear Fusion Research (*EN*) ..... N 70
Research into Cooling-Water Discharge (*BTR*) Ag 35
Turbine-Generator Operation (*NB*) ..... N 68
Utilities Award Grants (*EN*) ..... My 77
Utilities Planning for a New Industrial Chemical Complex [71-IPwr-7] (*A*) ..... S 54
Wanted: Power Plant Sites (*Ed*) ..... Mr 17
Power Plant Sites (*C*) ..... My 60

Electrical Equipment
Electrical and Electronic Equipment [1971 outlook] (*NR*) ..... F 89
Failure Distributions of Mechanical Versus Electrical Components [71-DE-34] (*A*) ..... Jl 47

Electricity
Electric Power Budget (*NB*) ..... Ap 72
Flames, Ions, and Electric Fields [70-WA/Fu-4] (*A*) F 75
Home Engine-Generator Set (*BTR*) ..... S 38
How Will We Meet the Demand for Electrical Power in 1980? [70-WA/Fu-3] (*A*) ..... F 75
Pollution Solution: The Electrical Approach (*BTR*) Ap 49

Electrochemistry
Electrochemical Grinding of Cylindrical Test Specimens [71-Prod-11] (*A*) ..... Jl 49
Mammoth Grinder (*BTR*) ..... F 58
Whirling Dervish (*PB*) ..... S 44, 45

Electrodes
Whirling Dervish (*PB*) ..... S 44, 45

Electrodynamics
Evaluation and Development of Engine Components and Accessories with Electrodynamic Shakers [71-DGP-4] (*A*) ..... Ag 49

Electrofluid Dynamics
Computed Performance Characteristics of Electrofluid Dynamic Colloid Generators [70-WA/Ener-5] (*A*) ..... Ap 61

Electrohydrodynamics
The Influence of EHD Lubrication on Rolling Bearing Selection and Design [71-DE-3] (*A*) Jl 44

Electromagnetics
See Wave Technology
Electromagneto-Thermoelastic Plane Waves in Solids with Thermal Relaxation [71-APMW-5] (*A*) ..... N 55
A Mechanical Engineer Looks at EMI/RFI Shielding [70-WA/DE-13] (*A*) ..... F 67

Electron Microscopy
On the Fundamental Mechanism of Large Strain Plastic Deformation, Electron Microscopy of Metal Cutting Chips [70-WA/Prod-11] (*A*) Mr 60

Electronics
Electrical and Electronic Equipment [1971 outlook] (*NR*) ..... F 89
Electronic Super Guard (*BTR*) ..... N 40
Electronic Versatility for Fuel Economy in Turbine Powered Vehicles [71-GT-31] (*A*) .... Ag 45
A Gigabit per Second (*BTR*) ..... F 48
Imaginative Imaging (*BTR*) ..... Ag 35
The Intersections of Solids Shown by Electronic Analog for Mechanism Simulation [70-Mech-6] (*A*) ..... Ja 46
Mini-Sized Calculator (*BTR*) ..... F 53
Solid-State A-C Variable Speed Drives [based on 70-DE-9]
Rapid Transit Progress (*C*) ..... F 77
The Solid-State Lamp [based on 71-DE-6] .... N 22
Solid-State Light Sources [71-DE-6] (*A*) ... Jl 45

Electrons
Depth of Penetration During Electron Beam Welding [70-WA/HT-2] (*A*) ..... Ap 58
Electroplating
See Plating
Electrostatics
Coming: The New York Banana (*BTR*) .... S 38
Evaluating the Interactions of Electrostatic Fields with Fluid Flows [71-DE-41] (*A*) .. Ag 46
Elias, J. A. deceased ..... N 93
Elikan, Leonard
180-Day Life Test of Solid Electrolyte System for Oxygen Regeneration [71-Av-32] (*A*) ..... O 57
Eliot, F.
Safety Certification of a Man-Rated Hyperbaric Facility [71-PVP-63] (*A*) ..... S 50
Ellenberger, W. J. (*reviewer*)
"A Guide to the Industrial Archaeology of Europe" (*BR*) ..... N 62
Ellicott, Charles R., Jr. deceased ..... My 91
Elliott, Phil T. retires as a vice-president of Eastman Kodak Co. and assistant general manager of Kodak Park and receives Leo H. East Memorial Award as "Rochester Engineer of the Year" of the Rochester Engineering Society ..... Ap 85
Ellipsoids
Shakedown of Pressure Vessels with Ellipsoidal Heads [71-PVP-34] (*A*) ..... Ag 53
Elliptical Gears
See Gears
Ellis, James receives ASME 50-year membership pin ..... Ag 85
Ellison, W.
Control of Water Pollution from the Discharge of Liquid Effluents of Wet-Collector Type Gas-Cleaning Systems [70-WA/PID-9] (*A*) ... Mr 64
Process Optimization Control of Air Pollution [70-WA/APC-2] (*A*) ..... F 68
Ellyin, F.
Lower Bound to Limit Pressure of Nozzle-to-Cylindrical Shell Attachment [71-PVP-38] (*A*) Ag 53
Elmendorf, R. G.
Power in the Year 2001 (*C*) ..... N 60
Elrod, H. G., Jr.
Conditions for the Rupture of a Lubricating Film Part II: New Boundary Conditions for Reynolds Equation [70-Lub-3] (*A*) ... Ja 42
A Theoretical Study of the Dynamic Behavior of Foil Bearings [70-Lub-5] (*A*) ..... Ja 42
Elsworth, J. V. deceased ..... D 83
Elverum, Gerard W. receives 1971 Design Award from ASME Aviation and Space Division ..... S 92
Ely, E. W. deceased ..... N 93
Ely, Norman J. elected president, Cooling Tower Institute ..... My 88
Emerick, Robert H. elected Fellow ASME D 81
Emery, A. F.
Free Convection Through Vertical Plane Layers of Non-Newtonian Power Law Fluids [70-WA/HT-1] (*A*) ..... Ap 58
Employment
See also Economic Security
As the President Sees It
The ASME and Economic Security ..... Ja 108
ASME Employment Report: Activities in Easing the Engineer Job Pinch
ASME Sections Take Over Member Job Aid Ap 83
ASME Joins AIAA in Workshops on Professional Employment Open to Engineers in All Disciplines ..... Ja 109; F 96; Ap 83; My 114
ASME Employment Aids (*C*) ..... My 60
Employment Help Wanted (*C*) ..... F 77
Engineer Immigration Halted (*NB*) ..... Ap 72
Engineering: What Does the Future Hold? [based on 71-DE-30] ..... S 19
What Does the Future Hold for the Engineer? [71-DE-30] (*A*) ..... Jl 47
Engineering Employment Practices
NSPE Cosponsor of 2-Day Conference, 1971 Preview ..... My 76
Review ..... Ag 64
The Environment and Employment (*Ed*) ..... F 11
Environmental Jobs to Double by 1980 (*TL*)
"Opportunities in Environmental Careers" S 85
Executive Market (*NB*) ..... D 66
GRAD (Graduate Resume Accumulation and Distribution)
The Job Problem (*C*) ..... Ja 55; Ap 67
21st Century? (*C*) ..... F 78
Jobs Open in Occupational Safety and Health Areas ..... S 90
Labor Department Registry (*NB*) ..... Ja 63
NSPE Recommends Plan for Administering Fund for Unemployed Engineers ..... Je 56
Employment Practices (*C*) ..... O 65
NSPE Urges Conversion Assistance (*NB*) ... Je 58
Out of Work? VEST Offers Answers to Professionals ..... Jl 57
VEST Provides Quick Job Match ..... Ag 118; S 126; O 116; N 118; D 118
Registry Information Available for Engineer Job Seekers ..... F 95
Turbine-Generator Operation (*NB*) ..... N 68
United Attack Underway on Engineering Unemployment ..... Jl 63
Employment Practices (*C*) ..... O 64
U. S. Industrial Economy: Outlook—1971
Growth in Sight Following Last Year's Sag—Lessening of Inflation (*NR*) ..... F 83
Executive Demand (*NR*) ..... F 83
Workshop for Professional Employment at ASME-ASCE National Transportation Engineering Meeting in Seattle, Wash., 1971 .... Je 102; Jl 96
Emralon PTFE
Air-Dry PTFE Gets "No Wear" (*BTR*) ..... S 38
Enclosures
Noise Abatement in Industry
Interaction of Sound and Structures
Multiple Excitations of Structures and Enclosures [70-WA/DE-8] (*A*) ... F 66, Ap 55
Sound Transmission Through an Elastic Enclosure Acoustically Closely Coupled to a Noise Source (*A*) [70-WA/DE-12] F 67, Ap 56
Energetics
See also Electric Utility Industry; Energy; Power Plants, Steam
An Approximate Solution to the Shuttle Heat-Transfer Losses in a Reciprocating Machine [70-WA/Ener-3] (*A*) ..... Ap 60
Computed Performance Characteristics of Electrofluid Dynamic Colloid Generators [70-WA/Ener-5] (*A*) ..... Ap 61
Development of Cryogenic Heat Pipes [70-WA/Ener-1] (*A*) ..... Ap 60
Thermal Energy Requirements of Air-Conditioning Systems [70-WA/Ener-4] (*A*) ..... Ap 61
Thermionic Reactor Development [70-WA/Ener-13] (*A*) ..... Ap 62
A Traversing-Thermocouple Technique for the Rapid Measurement of Thermal Conductivity in the Range 300 to 1200 K [70-WA/Ener-2] (*A*) Ap 60
University Gets Laser Lab (*EN*) ..... Mr 74
Energy
See also Energetics; Solar Energy
Combined Helium and Steam Cycle for Nuclear Power Plants [based on 70-WA/Ener-3] Ag 14
Combined Cycle (*C*) (*D*) (*AC*) ..... N 61
A Combined Helium and Steam Cycle for Nuclear Power Generation [70-WA/NE-3] (*A*) ..... My 55
The Crisis in Power-Plant Siting [based on 70-WA/Ener-12] ..... Je 10
Power-Plant Siting (*C*) (*AC*) Ag 57; (*C*) (*D*) S 59; D 57
Emissions (*C*) ..... D 57
Changing Emphasis in the Siting of Steam Electric Power Plants [70-WA/Ener-12] (*A*) Ap 62
Cyclic Energy Demands Supplied Economically with Gas Turbines and Combined Cycle Plants [71-GT-31] (*A*) ..... Jl 40
Does Man's Release of Energy Contribute to the Melting of the Polar Ice Caps or Does It Move the Earth Toward Another Ice Age? [70-WA/APC-1] (*A*) ..... F 68
Energy and Power Program Financial Aid Available [at University of Pennsylvania] (*EN*) .. D 69
Energy Association Spokesmen Assess Impact of Nixon's Energy Policy
Environmental and Energy Needs to Be Balanced ..... Ag 61
Highlights from President Nixon's Energy Policy ..... Ag 63
The Energy Crisis (*Ed*) ..... N 13
Energy Systems in Large Process Plants [71-Pet-13] (*A*) ..... D 48
Energy's Role in Meeting the Needs of the 1970's [70-WA/Ener-9] (*A*) ..... Ap 62
Engineering a Better Environment
4: An Engineer Looks at the Energy Dilemma F 40
The Energy Dilemma (*C*) ..... Je 50
Operation Arctic (*C*) ..... Ap 68
7: The Environment-Energy Balance: Needed Actions ..... My 33
Environment-Energy Balance (*C*) Jl 51; Ag 56
ERC Mandate: Meet Future Energy Needs (*TL*)
"Electric Utilities Industry Research and Development Goals through the Year 2000" N 73
A Fuel for Total Energy [71-GT-55] (*A*) .... Jl 39
Measurement of Energy Dissipation in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-4] (*A*) ..... S 55
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Energy Transmission in Piping Systems and Its Relation to Noise Control [70-WA/Pet-3] (*A*) ..... Ap 54
Power in the Year 2001
Part 1—Dawn of the Solar Age ..... S 24
Power in the Year 2001 (*C*) ..... N 60
Part 2—Thermal Sea Power ..... O 21
Part 3—Solar Power ..... N 33
Part 4—Rock Burning ..... D 27
Sea Burning ..... D 30
Power in the Year 2001 (*Ed*) ..... S 17
Power in the Year 2001 (*C*) ..... N 60
Radiative Energy Transfer Within a Nonisothermal Air Plasma [71-HT-G] (*A*) ..... N 58
System Energy as a Factor in Considering Future Transportation [70-WA/Ener-8] (*A*) ..... Ap 61
Work Exchangers for Energy Recovery in High-Pressure, Incompressible Flow Processes [70-WA/PID-11] (*A*) ..... Mr 64
World Energy Press Conference Heralds in Era of Cooperation—Gone Is Era of Competition (*NR*) N 63
Engineering
Engineering a Profession [70-WA/Av-3] (*A*) .. F 68
Engineering Degrees Increase for 1970 (*EN*) .. F 90
Engineering Enrollments Down (*EN*) ..... Ap 73
Legal and Moral Responsibilities of Engineers Toward Public Safety [70-WA/Av-2] (*A*) .. F 68
Processing Revisions of Specifications in Engineering [71-DE-46] (*A*) ..... Ag 47
Slow Death of a Free Profession [70-WA/Av-1] (*A*) F 68
Engineering Achievements
National History and Heritage Committee established by ASME late in 1970 to identify mechanical engineering attainments of the past by designating landmarks, sites, machinery, and other materials of historic interest, as well as such other tangibles suitable for the U. S. National Archives as drawings, old photographs, company records, and the recollections and reminiscences of engineers ..... Ap 85
World Trade Center Wins Award as "Outstanding Civil Engineering Achievement for 1971" (*NB*) Je 59
Engineering and Science Institute
Kettering (Eugene W.) Engineering and Science Center
New Kettering Center in Dayton, Ohio (*EN*) O 75
Engineering Disciplines
The Engineer's Knowledge: Is It Transferable from One Industry to Another? [based on 71-DE-28] ..... O 26
Shifting from One Industry to Another; How Transferable Is the Engineer's Knowledge? [71-DE-28] (*A*) ..... Jl 47
Engineering Foundation
See Engineering and Science Institute
Engineering Index
Ei Awarded NSF Grant (*NB*) ..... Ja 63
1970 Annual Engineering Index (*TL*)
"Engineering Index Annual for 1970" ..... Jl 61
Engineering Manpower
Employment Help Wanted (*C*) ..... F 77
Supply of Engineers (*C*) ..... Ja 55
Engineering Manpower Commission
See Engineers Joint Council
Engineering Profession
See also Management; Professionalism
EJC Publishes Profile of Engineering Profession Ag 82
GRAD (Graduate Resume Accumulation and Distribution)
The Job Problem (*C*) ..... Ja 55; Ap 67
21st Century? (*C*) ..... F 78
Identifying the Engineer
Needed: Unification of the Engineering Profession ..... Ja 20
Identifying the Engineer (*C*) ..... Mr 66; Ap 66; Je 51; Ag 57
Long Term Outlook Is Good (*EN*) ..... Je 60
On Professionalism (*C*) ..... F 77
"The Revolt of the Engineers: Social Responsibility and the American Engineering Profession" (*BR*) ..... O 66
State Engineering Laws and Board Rules (*TL*)
"Synopsis of State Engineering Registration Laws and Policies and Procedures of State Boards" ..... Je 63
Your Professional License—An Opportunity (*Ed*) O 19
Engineering Societies Library
Current Books ..... Ja 57; F 78; Mr 66; Ap 69; My 61; Je 52; Jl 53; Ag 57; S 60; O 66; N 62; D 57
Free World's Largest Engineering Library: Over 200,000 Volumes on Tap at Engineering Societies Library in New York City (*NR*) Mr 69

Engineering Society of Detroit highest membership honor, "The Distinguished Member Service Award," of 1971 goes to Clement Freund.....S 98

Engineers

ASME Joins AIAA in Workshops on Professional Employment Open to Engineers in All Disciplines.....Ja 109; F 96; Ap 83; My 114

ASME Employment Aids (*C*).....My 60

The Engineer: An Individual...(*Ed*).....D 11

The Engineer and Society: Students Speak Out (Charles T. Main Award contest papers of 1971).....S 33

Winning Paper by James M. Singleton

Can Engineers Continue to Advance Human Welfare?.....S 34

Runnersup

ALAN D. ANDERSON

How to Fight Pollution (*A*).....S 34

RONALD WAYNE BURR

Technician to Politician—One Small Step for Man (*A*).....S 34

JACK GAMMILL CLEMENS

How Engineers Can Improve Their Standing in Society (*A*).....S 35

K. FRED RIST

Traffic Safety and the Engineer (*A*).....S 35

DEBORAH M. SCHMITZ

Social Responsibility and Engineering (*A*) S 35

Engineer Immigration Halted (*NB*).....Ap 72

Engineer Income Level (*NB*).....Ap 72

Engineering: What Does the Future Hold? [based on 71-DE-30].....S 19

What Does the Future Hold for the Engineer? [71-DE-30] (*A*).....Jl 47

Engineers Needed to Teach (*EN*).....Je 60

"Engineers of Distinction" a New Directory (*TL*)

"Engineers of Distinction including Scientists in Related Fields".....F 93

The Formal Education of Mechanical Engineers O 37

NSPE Recommends Plan for Administering Fund for Unemployed Engineers.....Je 56

Employment Practices (*C*).....O 65

Registry Information Available for Engineer Job Seekers.....F 95

Salaries of Engineers in Education (*EN*).....Ap 73

The Transition Requirements from Engineer to Entrepreneur—Where Management Goes Wrong [71-DE-24] (*A*).....Jl 46

Engineers, Mechanical

Relativity and the Mechanical Engineer (*C*)..Je 51

Engineers, Young

As the President Sees It

Interfacing the Present with the Future...O 92

Engineers Council for Professional Development

Executive Committee of Board of Directors names David R. Reyes-Guerra executive secretary N 89

Engineers Joint Council

EJC Publishes Profile of Engineering Profession Ag 82

EJC Technical Information Seminar Gets Earful on Noise Pollution Control (*NR*).....Mr 70

Engineer Immigration Halted (*NB*).....Ap 72

Engineering Manpower Commission

Certification Improves Technicians' Salaries (*EN*).....Ja 64

Engineering Enrollments Down (*EN*).....Ap 73

How Old/Young Is the Grad? (*EN*).....D 69

Salaries of Engineers in Education (*EN*)..Ap 73

Starting Salaries for Tech Grads Increased (*EN*) Mr 74

GRAD (Graduate Resume Accumulation and Distribution)

The Job Problem (*C*).....Ja 55; Ap 67

21st Century? (*C*).....F 78

Engines

All-Aluminum Engine Block (*BTR*).....F 59

Effect of Manifold Tuning on Performance of Engines [71-Vibr-104] (*A*).....D 54

Noise Abatement in Industry

Engine Combustion and Noise

The Influence of Turbulence and Compounding on Unburned Hydrocarbons and Nitric Oxide in the Combustion Products from Internal Combustion Engines [70-WA/DGP-2] (*A*).....Ap 57

Mechanical Aspects of Gear-Induced Noise in Complete Power Train Systems [70-WA/DGP-1] (*A*).....Ap 57

Origins of Reciprocating Engine Noise—Its Characteristics, Prediction, and Control [70-WA/DGP-3] (*A*).....Ap 58

2750 Deg F Engine Test of a Transpiration Air-Cooled Turbine [70-WA/GT-1] (*A*).....My 56

Victory Seal (*BTR*).....Ja 33

Engines, Aircraft

Noise Abatement in Industry

Gas Turbine Noise Abatement

Future Trends in Aircraft Engine Noise Research [70-WA/GT-13] (*A*).....Ap 57

Noise Considerations in High Bypass Ratio Fan Engine Design [70-WA/GT-14] (*A*) Ap 57

The Wingless Turbojet (*BTR*).....Ap 45

Engines, Combustion

ASME Panel Examines Progress and Current Needs in Gas Turbine Codes and Standards Ap 77

Engines, Diesel

Diesel Research and Development Techniques [71-DGP-13] (*A*).....Ag 49

Further Considerations of Jerk Pump Design Factors for High Specific Output Diesel Engines [71-DGP-12] (*A*).....Ag 49

The Interaction of Air Motion, Fuel Spray, and Combustion in the Diesel Combustion Process [71-DGP-2] (*A*).....Ag 48

On Model Investigations Pertaining to Scavenging in Two-Stroke Diesel Engines [71-DGP-8] (*A*) Ag 49

Power Increase and Reliability of Diesel Engines [71-DGP-11] (*A*).....Ag 49

Stress Distributions in Some Diesel Engine Crankshafts [71-DGP-1] (*A*).....Ag 48

Engines, Diesel and Gas Power

Evaluation and Development of Engine Components and Accessories with Electrodynamic Shakers [71-DPG-4] (*A*).....Ag 49

Large Engines—Analyze Before Fabricating [71-DGP-7] (*A*).....Ag 48

Engines, Free-Piston

Experimental and Analytical Study of a Small Free-Piston Gasifier [71-DGP-5] (*A*).....Ag 48

Engines, Gas

Combustion Characteristics of Large Gas Engines [71-DGP-6] (*A*).....Ag 48

Gas-Engine Oil Ash and Viscosity Limits—The Supplier's Dilemma [71-DGP-10] (*A*).....Ag 49

Engines, Gas-Turbine

Advanced Regenerative Gas Turbine Designs for Lightweight and High Performance [71-GT-67] (*A*).....Jl 40

Air Pollution Control Office (Ann Arbor)

Bright Future Predicted for Gas Turbine (*BTR*) S 37

Aircraft Gas Turbine Condition Analysis Instrumentation: Its Use for the Status Diagnosis of Naval Turbine Engines [71-GT-86] (*A*).....Jl 41

Development of Borsic-Aluminum Composite Fan Blades for Supersonic Turbofan Engines [71-GT-90] (*A*).....Jl 42

A Fluidic Fuel Control Valve for Turbine Engines [71-GT-44] (*A*).....Ag 45

"Flying Test Cell" Evaluation and Applications [71-GT-77] (*A*).....Jl 41

Lift Jet Engine, JR100 [71-GT-75] (*A*).....Jl 41

Manufacturing Approaches to Resin Matrix Composite Airfoils for Gas Turbine Engines [71-GT-47] (*A*).....Ag 45

Metal Matrix Composite Fabrication Procedures for Gas Turbine Engine Blades [71-GT-46] (*A*) Jl 38

Standard Measurement of Aircraft Gas Turbine Engine Exhaust Smoke [71-GT-88] (*A*).....Jl 42

Transient Response of a 25,000-hp Marine Gas-Turbine Engine [71-GT-61] (*A*).....Jl 39

Turbine Passenger Car (*BTR*).....Mr 48

A Turbine-Speed, Main-Engine Fuel Pump [71-GT-24] (*A*).....Ag 45

Engines, High-Speed

The Dynamic Delivery Rate and the Hydraulic Similarity of Injection Pumps for High-Speed Engines [71-DGP-3] (*A*).....Ag 48

Engines, Internal-Combustion

Checking Muffler Noise Levels (*OS*).....Ag 43

Hydrogen-Fueled IC Engine (*BTR*).....N 40

Engines, Jet

Experimental Investigation of Methods for Improving the Dynamic Response of a Twin-Spool Turbojet Engine [71-GT-14] (*A*).....Jl 36

Inertia Welded Jet Engine Components [71-GT-33] (*A*).....Jl 37

The Jet Fuel Starter Goes Operational [71-GT-43] (*A*).....Jl 38

Lift Jet Engine, JR100 [71-GT-75] (*A*).....Jl 41

Engines, Marine

Transient Response of a 25,000-hp Marine Gas-Turbine Engine [71-GT-61] (*A*).....Jl 39

Engines, Natural Gas

A Computer Simulation of Scavenging and Combustion in a Loop-Scavenged, Two-Cycle Natural Gas Engine [71-DGP-9] (*A*).....Ag 49

Engines, Racing

Wide Open Engine (*PB*).....Ap 50

Engines, Spark-Ignition

Nitric-Oxide Generation in a Simulated Spark-Ignition Engine [70-WA/PID-3] (*A*).....Mr 63

England

Checking Workpiece Profiles (*OS*).....Je 38

England, F. E.

Normal Mode Solution for the Vibrational Motions of Long Flexible Booms on the RAE Satellite [71-DE-J] (*A*).....Jl 48

Engwall, R. L.

Coordinating Work of Manufacturing Engineering with Design Engineering [71-DE-40] (*A*) Ag 46

Enterprise

The Role of Private Enterprise in a Post-Industrial Society

1: Education, Technology and Business, A Case Study of Business in the Future—Problems and Opportunities (*TL*).....Ag 71

Enthalpy

An Experimental Investigation of the Enthalpy of Saturated Heavy-Water Liquid [71-HT-M] (*A*).....N 59

Mass Flux and Enthalpy Distribution in a Rod Bundle for Single- and Two-Phase Flow Conditions [70-WA/HT-8] (*A*).....Ap 59

Entrainment

High Entrainment Ejector Design [71-FE-34] (*A*) S 32

Entrepreneurs

The Transition Requirements from Engineer to Entrepreneur—Where Management Goes Wrong [71-DE-24] (*A*).....Jl 46

Entropy

On Entropy Production in Adiabatic Flow in Turbomachines [71-FE-3] (*A*).....Ag 54

Environment

See also Manned Space Station

Beneficial Uses of Waste Heat [70-WA/Ener-10] (*A*).....Ap 62

The Effect of Solar Radiation on the Energy Balance of a Controlled-Environment Greenhouse [70-WA/Sol-3] (*A*).....F 64

Energy Association Spokesmen Assess Impact of Nixon's Energy Policy

Environmental and Energy Needs to Be Balanced.....Ag 61

Highlights from President Nixon's Energy Policy.....Ag 63

Engineering a Better Environment

1: Environmental Dangers Challenge Design Engineers [based on 70-DE-79]

Compatibility (*C*).....F 77

Conserving Water (*C*).....Ja 56

2: High-Speed Interurban Transportation Systems

Fast Transit Link [based on 69-WA/PID-11]

Fast Transit Link (*C*) (*D*) (*AC*).....Mr 66

3: Building a Pollution-Free Steel Plant..Ja 25

4: *An* Engineer Looks at the Energy Dilemma F 40

The Energy Dilemma (*C*).....Je 50

Operation Arctic (*C*).....Ap 68

5: Waste Water Treatment Enhances Environment [based on 70-PEM-19].....Mr 40

6: Industrial Noise Control—Past, Present, and Future [based on 70-PEM-29].....Ap 29

7: The Environment-Energy Balance: Needed Actions.....My 33

Environment-Energy Balance (*C*) Jl 51; Ag 56

8: Auto Pollution Solution: The Gas Turbine? [based on 70-WA/GT-8].....Je 25

The Gas Turbine (*C*).....Ag 56; S 59

The Potential of the Gas-Turbine Vehicle in Alleviating Air Pollution [70-WA/GT-8] (*A*).....My 56

9: Waste Heat Uses Cut Thermal Pollution [based on 70-WA/Ener-6].....Jl 15

Waste Heat Uses (*C*) (*AC*).....O 66

Uses of Waste Heat [70-WA/Ener-6] (*A*) Ap 61

10: Designing an Air Monitoring Facility..Ag 24

Air Monitoring Facility (*C*) (*D*) (*AC*)..N 60

11: Underground Utility Tunnels [based on 70-WA/Ener-11]

Underground Tunnels (*C*).....N 62

The Potential Use of Utility Tunnels in Urban Areas [70-WA/Ener-11] (*A*).....Ap 62

Engineering a Better Environment (*Ed*).....Ja 9

The Environment and Employment (*Ed*).....F 11

Environmental Control—An Engineering Challenge, Theme of Western Electric Seminar, 1970

Review.....Ja 61

Environmental Jobs to Double by 1980 (*TL*)

"Opportunities in Environmental Careers" S 85

Environmental Training [UCLA establishes doctoral program] (*EN*).....D 69

An Inventory of the Biomass—An Ecological Approach to Environmental Surveillance [70-WA/PID-12] (*A*).....Mr 64

Managing Ocean Resources (*OS*).....Je 38

Two-Day Statistics and Environment Conference Slated for USC Campus [1972] (*EN*).....D 69

Wanted: Power Plant Sites (*Ed*).....Mr 17

Power Plant Sites (*C*).....My 60

Epicycles
An Application of Boolean Algebra to the Motion of Epicyclic Drives [70-Mech-28] (*A*)....Ja 48
Epoxy
Design and Development of a Boron-Glass-Epoxy Lightweight Composite Gear Case [71-GT-85] (*A*).....Jl 41
Equilibrium, Nonequilibrium
Chemical Nonequilibrium in Supersonic Nozzle Flow [71-FE-8] (*A*).....Ag 54
Equipment
Maintenance of Power Equipment [71-IPwr-4] (*A*) S 53
Operation Arctic.....F 12
Operation Arctic (*C*).....Ap 68; S 60
Erdman, Arthur G.
Kinematic Synthesis of a Geared Five-Bar Function Generator [70-Mech-2] (*A*).....Ja 45
Synthesis of a Geared N-Bar Linkage [70-Mech-24] (*A*).....Ja 48
Erf, R. K.
Holographic Characterization of Aerospace Components [71-GT-74] (*A*).....Jl 40
Ermer, D. S.
Optimization of the Constrained Machining Economics Problem by Geometric Programming [71-Prod-9] (*A*).....Jl 49
Erosion
Metal Erosion through Water Impact (*NTB*) N 38
SST vs. the Rain Drop (*BTR*).....Je 34
Ertel, C. W.
New Fuels—Old Coal [71-Pet-15] (*A*).....D 48
Eryou, N. D.
An Experimental and Analytical Study of Radiative and Conductive Heat Transfer in Molten Glass [70-WA/HT-10] (*A*).....Ap 59
Eschenbach, P. W.
Link Length Bounds on the Four-Bar Chain [70-Mech-62] (*A*).....Ja 52
Eshleman, R. A.
Effects of Axial Torque on Rotor Response: An Experimental Investigation [70-WA/DE-14] (*A*).....F 67
Espy, R. H.
Austenitic Stainless Steels with Unusual Mechanical and Corrosion Properties [71-Pet-38] (*A*).....D 51
Essenhigh, Robert H.
Dominant Mechanisms in the Combustion of Coal [70-WA/Fu-2] (*A*).....F 75
The Energy Dilemma (*C*).....Je 50
Esser, J. R.
"Flying Test Cell" Evaluation and Applications [71-GT-77] (*A*).....Jl 41
Estabrook, Norman B.
Underwater Lift Truck [based on 70-WA/UnT-13] My 20
The Buoyancy Transport Vehicle (BTV) [70-WA/UnT-13] (*A*).....Je 46
Etching
Photofabrication of Metal Parts [based on 71-DE-32].....N 19
Photofabrication of Metal Parts [71-DE-32] (*A*) Jl 47
Eubanks, R. A.
Effects of Axial Torque on Rotor Response: An Experimental Investigation [70-WA/DE-14] (*A*).....F 67
Europe
European Translations Center
International Cooperation on Translations (*TL*) "Translations Register-Index".....Je 63
Gas Turbines for Pipeline Compressor Drives in North America and Europe [71-GT-35] (*A*) Jl 38
"A Guide to the Industrial Archaeology of Europe" (*BR*).....N 62
Meeting Europe's Low Noise Requirements for Compressor Stations [71-GT-87] (*A*).....Jl 41
Evaluation Methods
An Automated Method for Evaluating Truck Design [71-Vibr-112] (*A*).....D 55
Evans, D.
Optical Analysis of Ball Bearing Starvation [70-Lub-19] (*A*).....Ja 44
Evans, F. G.
Mechanical Properties and Histological Structure of Human Cortical Bone [70-WA/BHF-7] (*A*) Ap 63
Evans, G. A. deceased.....D 83
Evaporation
Controlled Flash Evaporation.....My 27
Enhanced Evaporating Film Heat Transfer from Corrugated Surfaces [71-HT-33] (*A*).....N 57
Heat Transfer from Large Double-Fluted Vertical Tube Evaporators [71-HT-34] (*A*).....N 57
Heat Transfer to Evaporating Liquid Films [71-HT-H] (*A*).....N 59
Interface Enhancement for Vertical Tube Evaporators: A Novel Way of Substantially Augmenting Heat and Mass Transfer [71-HT-38] (*A*)...N 57
Performance Characteristics of Corrugated Tubes for Vertical Tube Evaporators [71-HT-30] (*A*) O 63
Performance of a Rotating Flat-Disk Wiped-Film Evaporator [71-HT-37] (*A*).....N 57
Surface Temperatures and Heat Fluxes Associated with the Evaporation of a Liquid Film on a Semi-Infinite Solid [71-HT-C] (*A*).....N 58
Water Desalination Module (*NR*).....Mr 70
Evensen, D. A.
Applications of Holography to Dynamics: High-Frequency Vibrations of Beams [70-WA/APM-5] (*A*).....My 57
Everett, Harold A. deceased.....Ja 107
Everett, James L., III honored as Distinguished Alumnus of Pennsylvania State University Jl 74
Eversman, W.
The Free Vibrations of a Spinning Centrally Clamped Shallow Spherical Shell [71-APM-G] (*A*).....O 60
Evolution
Evolution and Technology in Conflict.....Mr 18
Evolution and Technology (*C*).....My 60; Je 51; Jl 52; Ag 56; O 64
Ewart, Arthur F. deceased.....Ja 107
Ewbank, W. J.
Metrication (*C*).....D 56
Ewert, Richard H. elected president of American Gear Manufacturers Association.....S 97
Excavators
Precision Control for Deep Ocean Work [70-WA/UnT-5] (*A*).....Je 45
World's Largest Wheel Excavator (*OS*).....N 45
Excision
Excised by Ice (*BTR*).....S 37
Excitation
Calculation of Correlation Matrices for Linear Systems Subjected to Nonwhite Excitation [71-APMW-10] (*A*).....N 55
Some Considerations in Design, Specification, and Evaluation of Digital Control System for Random Vibration Testing [71-Vibr-30] (*A*) N 50
Failure Prediction Through the Theory of Stochastic Excursions of Extreme Vibration Amplitudes [71-Vibr-60] (*A*).....N 53
An Investigation of Broad Band Random Vibration Simulation [71-Vibr-2] (*A*).....N 48
Large Amplitude Vibrations of Circular Plate on a Uniform Elastic Foundation [71-Vibr-9] (*A*) N 48
Noise Abatement in Industry
Interaction of Sound and Structures
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Multiple Excitations of Structures and Enclosures [70-WA/DE-8] (*A*)..F 66, Ap 55
Response and Internal Noise of a Fuselage to Random Excitation [70-WA/DE-9] (*A*) F 66, Ap 55
Nonlinear Vibration of Buckled Beams [71-Vibr-17] (*A*).....N 49
Nonlinear Vibrations of a Beam Under Harmonic Excitation [70-WA/APM-13] (*A*).....My 58
Nonlinear Vibrations of a Buckled Beam Under Harmonic Excitation [70-WA/APM-48] (*A*) Je 48
Vortex Excitation of Metal Bellows [71-Vibr-22] (*A*).....N 50
Executives
Executive Demand [1971 outlook] (*NR*).....F 83
Executive Market (*NB*).....D 66
Ten Years' Progress in Management, 1960–1970
I: Management, An Appraisal and Overview
Beyond Salary—Executive Compensation Past and Present [70-WA/Mgt-1] (*A*)....Mr 56
Exhaust
See also Smoke
Checking Muffler Noise Levels (*OS*).....Ag 43
Combatting Pollution (*NB*).....Mr 73
Optimization of the Gas Turbine Exhaust Heat Recovery System [71-GT-79] (*A*).....Jl 41
Recommended Practice for Most Efficient Use of Processed Exhaust Gas for Oil Production [71-Pet-23] (*A*).....D 49
Whoosh Shusher (*PB*).....Ag 40
The Wingless Turbojet (*BTR*).....Ap 45
Exhibitions
ASHRAE International Heating and Air-Conditioning Exposition
20th, 1971
Review: New Equipment Trends.....Ap 71
Business Equipment Expo Features Word Processing Symposium—Signals End to Paper Pollution (*NR*).....D 63
Design Engineering Show, 1971.....Je 72
Diesel and Gas Engine Power Division
50th Anniversary Exhibit, 1971
Preview.....F 95
Review.....Jl 68
Gas Turbine Products Show, 1971.....Je 66
Hanover Fair: No Recession (*OS*).....S 46
Personal Rapid Transit Systems
To Be Installed, Tested at TRANSPO, Washington, D. C., 1972 (*NB*).....N 69
Exits
Measured and Predicted Flow Near the Exit of a Radial-Flow Impeller [71-GT-15] (*A*).....Ag 44
Expansion
Dynamic Expansion of an Open-Ended Tube [71-Met-K] (*A*).....S 54
Generalized Expansion Factor of an Orifice for Subsonic and Supercritical Flows [70-WA/FM-3] (*A*).....Ap 64
Joining Metals with Different Expansion Rates (*NTB*).....Ag 37
The Kinetic and Thermal Expansion of Vapor Bubbles [71-FE-13] (*A*).....Ag 55
Exploration
Designing an Advanced Marine Corer [based on 69-WA/UnT-13]
Marine Coring (*C*).....F 77
Explosions
Bomb Threats (*NB*).....Ap 72
Man-Made Lunar Explosions (*BTR*).....F 56
Explosive Swedging
Reducing Oil Spills (*EN*).....Jl 58
Expositions
See Exhibitions
Extrusion
An Approach to Die Design in Extrusions [70-WA/Prod-16] (*A*).....Mr 61
A Comparison of the Frictional Losses in Hydrostatic and Conventional Extrusion Processes with Hydrodynamic Lubrication [70-Lub-26] (*A*) Ja 45
9500-Ton Extrusion Press (*OS*).....My 50

F

Faber, J. H.
Sulfur Oxide Control and Fly Ash Utilization [71-Pwr-1] (*A*).....D 51
Fabric
See also Cloth
Heat-Resistant Garments (*NTB*).....Jl 30
Fabrication Technology
Design, Fabrication, Inspection and Testing of Multiwall Pressure Vessels [71-PVP-57] (*A*) S 50
Experimental Fabrications of a High Strength, Low Alloy Steel by Means of Last Pass Temperature Control [71-Met-1] (*A*).....Ag 47
High-Temperature Material (*OS*).....Jl 35
Investigations of the Substitution of Isothermal Fabrication Programs for Last Pass Temperature Control Programs [71-Met-2] (*A*).....Ag 48
Joining Techniques for Fabrication of Composite Air-Cooled Turbine Blades and Vanes [71-GT-32] (*A*).....Jl 37
Large Engines—Analyze Before Fabricating [71-DGP-7] (*A*).....Ag 48
Materials [1971 outlook] (*NR*).....F 83
Metal Matrix Composite Fabrication Procedures for Gas Turbine Engine Blades [71-GT-46] (*A*) Jl 38
Photofabrication of Metal Parts [based on 71-DE-32].....N 19
Photofabrication of Metal Parts [71-DE-32] (*A*) Jl 47
Faces
Optimization of a Face Milling Process by Convex Programming [71-Prod-5] (*A*).....Jl 49
Fachbach, H.
Flow Investigation in a Francis Turbine [70-WA/FE-16] (*A*).....F 73
Fahy, F. J.
Radiation and Response of Cylindrical Beams Excited by Sound [71-Vibr-84] (*A*).....D 52
Failure
Failure Analysis of a Rotating Assembly [71-DE-17] (*A*).....Jl 46
Failure Distributions of Mechanical Versus Electrical Components [71-DE-34] (*A*).....Jl 47
Failure Prediction Through the Theory of Stochastic Excursions of Extreme Vibration Amplitudes [71-Vibr-60] (*A*).....N 53
Identification of Failing Mechanisms Through Vibration Analysis [71-Vibr-90] (*A*).....N 54
Predicting Machine Failure (*BTR*).....Ag 39
The Story of a Synthesis Gas Compressor Failure [71-Pet-31] (*A*).....D 50
Fairchild, S. M. deceased.....Jl 78
Fairleigh Dickinson University
ASME presents Regional Faculty Advisor of Year award to Charles J. Merz, Jr.....Ja 105

Fairs
See Exhibitions
Falkenhagen, G. L.
Stability and Transient Motion of a Vertical Three-Lobe Bearing System [71-Vibr-76] (*A*) D 52
Falkner-Skan Flows
Falkner-Skan Flows of Power-Law Fluids [71-FE-35] (*A*) S 52
Falsetti, H. L.
Measurement of Sequential Velocity Development in the Aorta [70-WA/BHF-13] (*A*) Ap 63
Fans
Development of Borsic-Aluminum Composite Fan Blades for Supersonic Turbofan Engines [71-GT-90] (*A*) J1 42
Discrete Frequency Noise from Lifting Fans [71-GT-12] (*A*) J1 36
Noise Abatement in Industry
Gas Turbine Noise Abatement
Noise Considerations in High Bypass Ratio Fan Engine Design [70-WA/GT-14] (*A*) Ap 57
Some Results of Fan/Compressor Noise Research [70-WA/GT-12] (*A*) Ap 56
Some Results of Recent Research on Fan and Jet Noise [70-WA/GT-15] (*A*) Ap 57
Farber, Erich A. elected Fellow ASME My 89
Design and Performance of a Compact Solar Refrigeration System [70-WA/Sol-4] (*A*) F 64
Farkas, E. J. deceased N 93
Farmer, F. Malcolm deceased Ap 88
Fasteners, Fastening
See also Joining Techniques
ANSI Special Committee to Study Development of Optimum Metric Fastener System O 71
Easy Insert, Easy Release Fastener (*NTB*) O 45
Foolproof Quick-Release Pin (*NTB*) Ap 46
Held Firm by Thread (*BTR*) Ag 39
"Jet-Set" Fasteners (*BTR*) F 59
The Super Adhesive (*BTR*) F 57
Tell-Tale Bolt (*BTR*) J1 25
Fathy, A.
Effect of Normal Shock on Turbulent Boundary-Layer Parameters [71-FE-16] (*A*) Ag 55
Fatigue
An Analytical Basis for Notch Sharpening by Fatigue [71-PVP-46] (*A*) Ag 53
Anisotropy of Fatigue Crack Propagation [71-Met-G] (*A*) Ag 48
Componentization for Fatigue Design and Testing (Provides Reliability for Modern Freight Cars) [71-RR-2] (*A*) S 51
Controlling Structural Fatigue Through Adhesive Bonding [71-DE-27] (*A*) J1 47
Creep/Fatigue Interaction Correlation for 304 Stainless Steel Subjected to Strain-Controlled Cycling with Hold Times at Peak Strain [71-PVP-6] (*A*) Ag 50
Cumulative Fatigue Damage Under Stress-Controlled Conditions [71-Met-M] (*A*) S 54
Effects of Tension-Compression Cycling on Fatigue Crack Growth in High Strength Alloys [71-PVP-2] (*A*) Ag 49
Fatigue and Fracture Reliability Analysis of Pressure Vessels [71-PVP-47] (*A*) S 48
Fatigue Crack Growth in Type 316 Stainless Steel at High Temperature [71-PVP-25] (*A*) Ag 52
Fatigue-Crack Growth Rates and Fracture Toughness Study of Welded Aluminum Alloy 5083 [70-WA/PVP-5] (*A*) F 76
Fatigue-Crack Propagation in Steels of Various Yield Strengths [71-PVP-12] (*A*) Ag 51
Fatigue of Cylinders Subjected to Pulsating Internal Pressure [71-PVP-15] (*A*) Ag 51
Fretting and Fretting-Fatigue in Metal-to-Metal Contacts [71-DE-38] (*A*) Ag 46
Inhibition of Water-Accelerated Rolling-Contact Fatigue [70-Lub-9] (*A*) Ja 42
Lubricant and Ball Steel Effects on Fatigue Life [70-Lub-16] (*A*) Ja 44
Mode II Fatigue Crack Propagation [71-Met-J] (*A*) S 54
Photoelastic Study and Fatigue Tests of a Contoured, Integrally Reinforced Branch Connection [71-PVP-5] (*A*) Ag 50
Rolling-Element Fatigue and Lubrication with Fluorinated Polyethers at Cryogenic Temperatures [70-Lub-17] (*A*) Ja 44
Shear Fatigue Crack Propagation and Shear Fracture in a Ductile Steel HY-130 [71-PVP-54] (*A*) S 50
Stress Analysis of High Temperature Pyrolysis Heater Coil Systems Subjected to Creep and Low Cycle Fatigue [71-Pet-17] (*A*) D 49
Fauske, H. K.
The Two-Phase Critical Flow of One-Component Mixtures in Nozzles, Orifices, and Short Tubes [70-WA/HT-5] (*A*) Ap 58
Velocity Distribution in the Liquid Film During Draining on a Cylindrical Surface [71-APM-J] (*A*) O 60
Fawke, A. J.
Experimental Investigation of Methods for Improving the Dynamic Response of a Twin-Spool Turbojet Engine [71-GT-14] (*A*) J1 36
Fazekas, G. A.
On Half Harmonics [70-WA/DE-16] (*A*) F 67
Fechek, F. J.
Advanced Composite. Efforts—A Status Report of Air Force Programs with Graphite Reinforced Composites [71-DE-13] (*A*) J1 46
Federation of African Organizations of Engineers
African Engineers Federation (*OS*) Mr 52
Fellowships
See Grants, Study
Fenimore, C. P.
Noise Abatement in Industry
Gas Turbine Noise Abatement
Formation and Measurements of Nitrogen Oxides in Gas Turbines [70-WA/GT-3] (*A*) Ap 56
Fenster, Saul K. named executive assistant to president of Fairleigh Dickinson University D 80
Fenton, R. E.
Performance Changes of a Sodium-Heated Steam Generator [71-HT-15] (*A*) O 62
Ference, Michael, Jr. elected member of National Academy of Engineering Je 77
Fernandes, J. H.
ASME Performance Test Codes Committee PTC-2 on Definitions and Values
Report on Proposed Code of Definitions and Values [70-WA/PTC-2] (*A*) My 52
Fernandez, F. L.
The Turbulent Boundary Layer with Mass Transfer and Pressure Gradient [71-APM-2] (*A*) S 55
Ferrara, Angelo A.
Thermal Control Systems Design for Space Station [71-Av-36] (*A*) O 58
Ferre, Luis A. elected Fellow ASME Ap 86; receives ASME Life Quality Engineering Citation for meritorious technological leadership and achievement Je 77; to give Roy V. Wright Lecture at 1971 Winter Annual Meeting S 89
Ferris, Edwin A. elected Fellow ASME Ag 86
Fessler, H.
Stress Distributions in Some Diesel Engine Crankshafts [71-DGP-1] (*A*) Ag 48
Fiber Reinforcement
An Experimental Study of Dispersion of Stress Waves in a Fiber-Reinforced Composite [71-APM-27] (*A*) S 57
Plane Deformations of Incompressible Fiber-Reinforced Materials [71-APM-V] (*A*) O 60
Fiberglass
Forming Fiberglass Honeycomb Elements (*NTB*) S 41
Fibers
Bubble Level as Pitch and Roll Sensor (*NTB*) O 44
The Cost Effectiveness of Natural and Synthetic Fiber Ropes in the Marine Environment [70-WA/UnT-9] (*A*) Je 46
Fiber Risers (*PB*) Ap 50
Synthetic Fiber Industry (*OS*) Ap 52
Fichter, B. S.
Fluidic Water Control for Water-Closet Tanks [70-WA/Flcs-11] (*A*) Je 43
Fidrych, L. F.
The Adaptability of LWR Quality Assurance Standards to the LMFBR [71-NE-9] (*A*) J1 43
Fiehn, A. J.
Design of the Supercritical 325-MW Unit Addition to Genoa Station No. 3 [71-Pwr-3] (*A*) D 51
Filler, M.
Characteristics of Six Novel Heat Pipes for Thermal Control Applications [71-Av-29] (*A*) O 57
Fillets
Effect of Fillets on Stress Concentrations in Cylindrical Shells with Step Changes in Outside Diameter [71-PVP-27] (*A*) Ag 52
Films
Air-Dry PTFE Gets "No Wear" (*BTR*) S 38
An Approximate Analysis of Gaseous Film Cooling with Constant Fluid Properties [71-GT-3] (*A*) Ag 44
Conditions for the Rupture of a Lubricating Film Part II: New Boundary Conditions for Reynolds Equation [70-Lub-3] (*A*) Ja 42
The Effectiveness of Film Cooling with Three-Dimensional Slot Geometries [71-GT-11] (*A*) J1 36
Enhanced Evaporating Film Heat Transfer from Corrugated Surfaces [71-HT-33] (*A*) N 57
Film Boiling Transition Temperature for Tissue Cooled with Liquid Nitrogen [70-WA/HT-16] (*A*) Ap 60
Flow Over an Oscillating Plate with Suction or with an Intermediate Film: Two Exact Solutions of the Navier-Stokes Equations [70-WA/APM-22] (*A*) My 59
Heat Transfer to Evaporating Liquid Films [71-HT-H] (*A*) N 59
Infrared Radiation of Thin Plastic Films [70-WA/HT-15] (*A*) Ap 59
Laminar Film Condensation from a Steam-Air Mixture Undergoing Forced Flow Down a Vertical Surface [71-HT-E] (*A*) N 58
Minimum Squeeze Film Thickness in a Periodically Loaded Journal Bearing [70-Lub-12] (*A*) Ja 43
Oil Film Thickness and Rolling Friction in Elastohydrodynamic Point Contact [70-Lub-2] (*A*) Ja 42
Performance of a Rotating Flat-Disk Wiped-Film Evaporator [71-HT-37] (*A*) N 57
Squeeze Film Bearing for the Elimination of Oil Whip [70-Lub-8] (*A*) Ja 42
Surface Temperatures and Heat Fluxes Associated with the Evaporation of a Liquid Film on a Semi-Infinite Solid [71-HT-C] (*A*) N 58
A Theoretical Investigation of Compliant Surface Journal Bearings [70-Lub-20] (*A*) Ja 44
Velocity Distribution in the Liquid Film During Draining on a Cylindrical Surface [71-APM-J] (*A*) O 60
Visual Detection of Holes in Thin Polymeric Films (*NTB*) F 50
Filters
Approximated Nonlinear Filters and Deterministic Filter Gains [70-WA/Aut-9] (*A*) F 70
Filtration
Liquid Filtration Equipment (*OS*) S 47
Findley, W. N.
Experimental Determination of Some Kernel Functions in the Multiple Integral Method for Nonlinear Creep of Polyvinyl Chloride [70-WA/APM-21] (*A*) My 59
A Linear Compressibility Assumption for the Multiple Integral Representation of Nonlinear Creep of Polyurethane [70-WA/APM-6] (*A*) My 57
Short-Time, Biaxial Creep of an Aluminum Alloy with Abrupt Changes of Temperature and State of Stress [70-WA/APM-41] (*A*) Je 47
Finite Difference Method
An Improved Finite Difference Method Applied to Thin Shells [71-PVP-24] (*A*) Ag 52
Finite-Element Programs
See also Modeling Methods
Analyses of Axisymmetric Upsetting and Plane-Strain Side-Pressing of Solid Cylinders by the Finite Element Method [70-WA/Prod-4] (*A*) Mr 59
The Application of the Finite-Element Technique to Potential Flow Problems [71-APM-22] (*A*) S 57
On Certain Approximations in the Finite-Element Method [70-WA/APM-34] (*A*) Je 47
Computer Analysis of a Railroad Freight Car Bolster Utilizing the Finite Element Method [70-WA/RR-7] (*A*) Je 42
A Design Oriented Approach to Creep and Plasticity in Finite Element Programs [70-WA/DE-4] (*A*) F 65
Experimental and Finite Element Stress Analysis of a Thin-Shelled Cylinder-to-Cylinder Model [71-PVP-36] (*A*) Ag 53
A New Approach for Plate Vibrations: Combination of Transfer Matrix and Finite-Element Technique [71-Vibr-85] (*A*) D 53
Short Courses Offered on ELAS Program at Duke (*EN*) D 69
Strain Concentration Analysis Using the Finite Element Method [71-PVP-39] (*A*) Ag 53
Stress Analysis of B16.9 Tees by the Finite Element Method: A Progress Report [71-PVP-40] (*A*) Ag 53
Fink, M. R.
Shock Wave Behavior in Transonic Compressor Noise Generation [71-GT-7] (*A*) Ag 44
Finnie, I.
Determination of Residual Stresses from Stress Intensity Factor Measurements [71-Met-A] (*A*) Ag 47
Fino, A. F.
Design, Fabrication, Inspection and Testing of Multiwall Pressure Vessels [71-PVP-57] (*A*) S 50
Fins
Heat-Transfer Performance of Internally Finned Tubes [71-HT-31] (*A*) O 63
Fiorentino, R. J.
Prediction of Loads and Stresses in Closed-Die Forging [70-WA/Prod-8] (*A*) Mr 60
Fire
Leadless Gas a Fire Hazard? (*BTR*) O 43
Fireproofing Materials
Mono-Kote IV (*BTR*) S 37
New Flame-Retardant Compounds (*BTR*) S 43

Firth, Brian W.
Growth ≠ Progress (*C*) ..... Jl 50
Fischer, J. F.
Application of Tungsten Carbide to Oilfield Rotary Drill Bits [71-Pet-21] (*A*) ..... D 49
Fischer, K. K. deceased ..... O 91
Fitterington, W. A.
General Electric Company Solid Polymer Electrolyte Water Electrolysis System [71-Av-9] (*A*) O 55
Fittings
Development and Performance of a Vanadium-Nitrogen Treated Steel for High Strength Pipeline Fittings [71-Pet-18] (*A*) ..... D 49
Flair Systems
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Refinery Flair System Injectors Redesigned for Noise Control [70-WA/Pet-4] (*A*) Ap 55
Flames
Flames, Ions, and Electric Fields [70-WA/Fu-4] (*A*) ..... F 75
Flaps
An Experimental Study of Rectilinear Jet-Flap Cascades [71-FE-14] (*A*) ..... Ag 55
Hydrodynamic Characteristics of a Cambered Hydrofoil with a Jet Flap [71-APMW-17] (*A*) N 56
Flash
Controlled Flash Evaporation ..... My 27
Water Desalination Module (*NR*) ..... Mr 70
Flaw Testing
Eddy-Current Flaw-Tester (*OS*) ..... My 51
Flying Spot Flaw Detector (*OS*) ..... N 45
Fleischmann, Walter L. elected chairman, Central New York District, American Society for Testing and Materials ..... Mr 84
Fletcher, Charles G. appointed to new post of president and general manager, Jerguson Gage & Valve Co., Burlington, Mass. ... N 89
Flexibility
Analysis and Experiments on Multi-Plane Balancing of a Flexible Rotor [71-Vibr-74] (*A*) ... D 52
The Effect of Support Flexibility and Damping on the Synchronous Response of a Single-Mass Flexible Rotor [71-Vibr-72] (*A*) ..... N 54
Flexible Rotor Balancing by the Exact Point-Speed Influence Coefficient Method [71-Vibr-91] (*A*) ..... D 53
Multiplane Balancing of Flexible Rotors—A Method of Calculating Correction Weights [71-Vibr-52] (*A*) ..... N 52
Should a Flexible Rotor Be Balanced in N or N + 2) Planes? [71-Vibr-55] (*A*) ..... N 53
A Simulation Model for Flexible Rotating Equipment [71-Vibr-71] (*A*) ..... N 54
Transient Flexible-Rotor Dynamics Analysis
Part 1—Theory [71-Vibr-92] (*A*) ..... D 53
On the Use of Balancing Machines for Flexible Rotors [71-Vibr-73] (*A*) ..... N 54
On the Use of the Undulating Elastica for the Analysis of Flexible Link Mechanisms [70-Mech-33] (*A*) ..... Ja 49
Flexure
Flexure of Layered Cranial Bone [70-WA/BHF-5] (*A*) ..... Ap 63
Variational Equation of Motion for Coupled Flexure and Torsion of Bars of Thin-Walled Open Section Including Thermal Effect [70-WA/APM-51] (*A*) ..... Je 48
Flood
Pulsation Mitigation Experience at the Willamar Waterflood Plant [71-Pet-12] (*A*) ..... D 48
Flow
See also Crossflow; Falkner-Skan Flows; Fluids
On Acoustic Propagation and Critical Mass Flux in Two-Phase Flow [71-HT-K] (*A*) ..... N 58
Addition of Heated Solid Particles to a Gas Flowing in a Pipe [71-FE-22] (*A*) ..... Ag 55
Aerodynamic Approximations for Unsteady Supersonic Flow Through Ducts of Revolution [71-Vibr-23] (*A*) ..... N 50
An Analysis of Axisymmetric Turbulent Flow Past a Long Cylinder [71-FE-25] (*A*) ..... S 52
An Analysis of Combined Free and Forced Convection Heat Transfer from a Horisontal Circular Cylinder to a Transverse Flow [71-HT-O] (*A*) N 59
An Analysis of Flow Through a Mixed Flow Impeller [71-GT-2] (*A*) ..... Ag 44
Analytical and Experimental Studies of Two-Dimensional Flows in a Radial Bladed Impeller [71-GT-20] (*A*) ..... Jl 36
The Application of the Finite-Element Technique to Potential Flow Problems [71-APM-22] (*A*) S 57
Arbitrary Mean Flow in Adverse Pressure Gradients [70-WA/FE-10] (*A*) ..... F 72
Base Heat Transfer in Two-Dimensional Subsonic Fully Separated Flows [71-HT-D] (*A*) ..... N 58
On the Behavior of Uniform Shear Flow in Diffusers and Its Effects on Diffuser Performance [71-GT-5] (*A*) ..... Ag 44
Bellows Vibration with Internal Cryogenic Fluid Flows [71-Vibr-14] (*A*) ..... N 49
Boiling-Flow Instabilities in a Cross-Connected Parallel-Channel Upflow System [71-HT-12] (*A*) O 61
The Channel Flow of a Density-Stratified Fluid About Immersed Bodies [71-FE-23] (*A*) .... S 52
Chemical Nonequilibrium in Supersonic Nozzle Flow [71-FE-8] (*A*) ..... Ag 54
Circumferential Traversing Technique for Intra-Stage Analysis of Axial Flow Compressors [71-FE-33] (*A*) ..... S 53
Combined Conduction, Convection, and Radiation Effects in Optically Thin Tube Flow [71-HT-17] (*A*) ..... O 62
The Computation of Transonic Flow Through Two-Dimensional Gas Turbine Cascades [71-GT-89] (*A*) ..... Jl 42
A Design Method and the Performance of Two-Dimensional Turbine Cascades for High Subsonic Flow [71-GT-34] (*A*) ..... Jl 37
Developing Flow with Combined Forced-Free Convection in an Isothermal Vertical Tube [71-HT-6] (*A*) ..... O 61
The Dispersion of Matter in Turbulent Pipe Flows [70-WA/FE-14] (*A*) ..... F 73
The Effect of Droplet Solidification Upon Two-Phase Nozzle Flow [71-FE-11] (*A*) ..... Ag 54
The Effect of Fluid Inertia on a Porous Thrust Plate—An Analytical Solution [70-Lub-18] (*A*) Ja 44
The Effect of Heat Transfer on the Flow of High Temperature Glass Through Small Nozzles [70-WA/HT-12] (*A*) ..... Ap 59
Entrance Development of the Weakly Interacted MHD Plane Channel Flow as Affected by Wall Conductances [71-APM-A] (*A*) ..... O 59
On Entropy Production in Adiabatic Flow in Turbomachines [71-FE-3] (*A*) ..... Ag 54
An Examination of Eddy Viscosity Models for Turbulent Free Shear Flows [71-FE-17] (*A*) Ag 55
Flow and Performance Characteristics for Non-Vented Vortex Amplifiers [70-WA/Flcs-18] (*A*) Je 44
Flow and Pressure Recovery in Wall-Attachment Fluid Amplifiers [70-WA/Flcs-9] (*A*) ..... Je 43
Flow Development in a Channel Having a Longitudinally Moving Wall [70-WA/APM-11] (*A*) My 58
Flow in Rotating Straight Pipes of Circular Cross Section [70-WA/FE-13] (*A*) ..... F 73
Flow-Induced Instability of an Elastic Tube [71-Vibr-39] (*A*) ..... N 51
Flow Investigation in a Francis Turbine [70-WA/FE-16] (*A*) ..... F 73
Flow Near Self-Excited and Forced Vibrating Circular Cylinders [71-Vibr-25] (*A*) ..... N 50
Flow Over an Oscillating Plate with Suction or with an Intermediate Film: Two Exact Solutions of the Navier-Stokes Equations [70-WA/APM-22] (*A*) ..... My 59
On Flow Past a Supercavitating Cascade of Cambered Blades [71-FE-6] (*A*) ..... Ag 54
Flow Transient Resulting from a Loss of Pumping Power in a Pressurized Water Nuclear Reactor [70-WA/NE-4] (*A*) ..... My 55
Forces on Submarine Pipelines from Steady Currents [71-UnT-3] (*A*) ..... D 46
Fundamental and Higher-Mode Density-Wave Oscillations in Two-Phase Flow: The Importance of the Single-Phase Region [71-HT-13] (*A*) O 62
Gas Flow Control Employing Temperature and Pressure Compensation [70-WA/Aut-14] (*A*) F 70
Generalized Contraction Coefficient of an Orifice for Subsonic and Supercritical Flows [70] WA/FM-1] (*A*) ..... Ap 64
Generalized Expansion Factor of an Orifice for Subsonic and Supercritical Flows [70-WA/FM-3] (*A*) ..... Ap 64
Hemodynamic Flow in Anisotropic, Viscoelastic Thick-Wall Vessels [70-WA/APM-50] (*A*) Je 49
Hydrodynamic Characteristics of a Cambered Hydrofoil with a Jet Flap [71-APMW-17] (*A*) N 56
The Hydrogen Bubble Technique of Flow Visualization: Factors Affecting Bubble Size and Buoyancy [71-FE-36] (*A*) ..... S 53
Hydro-Rotational Stability of a Slender Plate in a Rectangular Flow Channel [71-Vibr-37] (*A*) N 51
Influences of Size and Configuration on Cavitation in Submerged Orifice Flows [71-FE-39] (*A*) S 53
Integral Method for Flow Between Corotating Disks [70-WA/FE-4] (*A*) ..... F 72
Investigation Concerning the Fluid Flow in the Mixed-Flow Diffuser [71-GT-40] (*A*) ..... Jl 38
Laminar Film Condensation from a Steam-Air Mixture Undergoing Forced Flow Down a Vertical Surface [71-HT-E] (*A*) ..... N 58
Linearized Potential Flow Models for Hydrofoils in Supercavitating Flows [71-FE-12] (*A*) .. Ag 55
Low-Noise Flow Valve (*NTB*) ..... O 45
Low Reynolds Number Turbulent Flow in Large Aspect Ratio Rectangular Ducts [71-FE-A] (*A*) S 53
Low-Speed Slip Flow over a Wedge [70-WA/APM-26] (*A*) ..... My 59
Mass Flux and Enthalpy Distribution in a Rod Bundle for Single- and Two-Phase Flow Conditions [70-WA/HT-8] (*A*) ..... Ap 59
Measured and Predicted Flow Near the Exit of a Radial-Flow Impeller [71-GT-15] (*A*) ..... Ag 44
Measurement of Transient Flow Velocities for Water Hammer Applications [71-FE-29] (*A*) S 52
A New Method for the Calculations of Blade Loadings in a Radial Flow Compressor [71-GT-60] (*A*) ..... Jl 39
Noise Abatement in Industry
Interaction of Sound and Structures
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Nonsimilar Solution of the Laminar Boundary Layer in an Oscillatory Flow by an Integral Matrix Method [71-FE-10] (*A*) ..... Ag 54
Nonuniform Flow in the Inlet Section of a Straight Channel [70-WA/FE-27] (*A*) ..... F 74
A Numerical Method for Predicting the Pressure History of a Sonic Boom Wave Incident on Arbitrarily Oriented Plane Walls [70-WA/APM-9] (*A*) ..... My 57
A Numerical Study of the Flow in the Vortex Angular-Rate Sensor [70-WA/FE-5] (*A*) ... F 72
A Numerical Technique for the Calculation of Transonic Flows in Turbomachinery Cascades [71-GT-42] (*A*) ..... Jl 38
Some Observations on the Velocity Profiles in Fully Developed Viscous Flow in Turbomachines [70-WA/FE-24] (*A*) ..... F 74
Plastic Flow at the Chip-Tool Interface During Hot Machining [70-WA/Prod-1] (*A*) ..... Mr 59
The Plastic Flow of Surface Metal Layers [71-APM-W] (*A*) ..... O 60
Potential Flow Past a Group of Circular Cylinders [71-FE-18] (*A*) ..... S 52
Radial Flow Measurements of Hydrogen Near Its Critical Point in a Heated Cylindrical Tube [71-HT-25] (*A*) ..... O 62
Rarefied Gas Flow Through Long Square Tubes [70-WA/PID-1] (*A*) ..... Mr 63
Review of Two-Phase Flow Instability [71-HT-42] (*A*) ..... N 58
Skin Friction Drag and Velocity Profile Measurement Techniques in Two-Phase Flow [71-FE-32] (*A*) ..... S 52
Slow Particulate Viscous Flow in Channels and Tubes—Application to Biomechanics [71-APM-R] (*A*) ..... O 59
Slow Viscoelastic Flow at Large Distance from an Axis of Symmetry [71-APMW-9] (*A*) ..... N 55
A Study on the Flow Pattern Within the Centrifugal and Mixed-Flow Impellers [71-GT-41] (*A*) ..... Jl 38
Theory of the Oscillating Viscometer for Slip Flow [71-APM-K] (*A*) ..... O 60
Transient Flow Measurements with Sharp-Edged Orifices [71-FE-30] (*A*) ..... S 52
Transition and Mixing in the Shear Layer Produced by Tangential Injection in Supersonic Flow [71-FE-24] (*A*) ..... S 51
The Turbulence Characteristics of Two-Dimensional Wall-Jet and Wall-Wake Flows [70-WA/APM-35] (*A*) ..... Je 47
Turbulent Flow Between Parallel Plates with Gas Property Variation [71-FE-38] (*A*) ..... S 53
Two-Dimensional Diffuser Performance with Subsonic, Two-Phase, Air-Water Flow [71-FE-20] (*A*) ..... S 51
Two-Dimensional Miter-Bend Flow [70-WA/FE-1] (*A*) ..... F 71
The Two-Phase Critical Flow of One-Component Mixtures in Nozzles, Orifices, and Short Tubes [70-WA/HT-5] (*A*) ..... Ap 58
Two-Phase, Two-Component Critical Flow in a Venturi [71-FE-4] (*A*) ..... Ag 54
Unsteady Flow About a Solid Cylinder Falling Through a Viscous Fluid Contained in a Vertical Tube [70-WA/FE-9](*A*) ..... F 72
The Use of Flow Modeling Techniques to Obtain a Minimum Loss Design for the Stack Entrance

Flow (*Continued*)
Section of a 700-ft Power Plant Chimney [70-WA/Pwr-1] (*A*) ..... My 55
Wave Amplitude Study for Two-Phase Flow in a Horizontal Channel [71-FE-2] (*A*) ..... Ag 54
Work Exchangers for Energy Recovery in High-Pressure, Incompressible Flow Processes [70-WA/PID-11] (*A*) ..... Mr 64
Flow Meters
Bidirectional Flow Meter (*NTB*) ..... D 38
Subsurface Recording Wireline Flowmeter [71-Pet-9] (*A*) ..... D 48
Flower, A. D. deceased ..... Ag 87
Flowpath
Performance of Compressor Blade Rows in a Sloping Flowpath [71-GT-13] (*A*) ..... Jl 36
Fluctuation
On the Measurement of Fluctuating Pressure in the Mixing Zone of a Round Jet [71-FE-31] (*A*) S 53
Flueric Sensors
See Sensors
Fluerics
See Fluidics
Flugel, Charles
System Features of a Space Station Prototype Environmental/Thermal Control and Life Support System [71-Av-22] (*A*) ..... O 56
Flugge, Wilhelm recipient of Worcester Reed Warner Medal presented at 1970 WAM Ja 69, 70
Fluid Amplifiers
See Amplifiers
Fluid Dynamics
Grants Offered for Summer Fluid Dynamics Institute (*EN*) ..... Mr 74
Fluid Meters
Formulation of Equations for Orifice Coefficients [70-WA/FM-2] (*A*) ..... Ap 64
Generalized Contraction Coefficient of an Orifice for Subsonic and Supercritical Flows [70-WA/FM-1] (*A*) ..... Ap 64
Generalized Expansion Factor of an Orifice for Subsonic and Supercritical Flows [70-WA/FM-3] (*A*) ..... Ap 64
Fluidics
See also Flow; Laminar Flow
Aerodynamic Approximations for Unsteady Supersonic Flow Through Ducts of Revolution [71-Vibr-23] (*A*) ..... N 50
Analysis of Nonlinear Transient Motion of Cables Using Bond Graph Method [71-Vibr-21] (*A*) N 50
Bellows Vibration with Internal Cryogenic Fluid Flows [71-Vibr-14] (*A*) ..... N 49
Characterization of Free and Impinging Axisymmetric Jets with and without Auxiliary Flows [70-WA/Flcs-6] (*A*) ..... Je 43
Circular Cylinder Enclosed in Various Shrouds [71-Vibr-28] (*A*) ..... N 50
A Computer-Aided Design Method Specially Applicable to Fluidic-Pneumatic Sequential Control Circuits [70-WA/Flcs-17] (*A*) ..... Je 44
Dynamic Behavior of a Switching Jet in a Model Bistable Fluidic Device [70-WA/Flcs-20] (*A*) Je 44
Electrically Switched Fluidic Valve (*NTB*) .. N 38
Flow-Induced Instability of an Elastic Tube [71-Vibr-39] (*A*) ..... N 51
Fluctuating Lift Forces of the Karman Vortex Streets on Single Circular Cylinders and in Tube Bundles
Part 1: The Vortex Street Geometry of the Single Circular Cylinder [71-Vibr-11] (*A*) ..... N 49
Part 2: Lift Forces of Single Cylinders [71-Vibr-12] (*A*) ..... N 49
Part 3: Lift Forces in Tube Bundles [71-Vibr-13] (*A*) ..... N 48
Flueric Carbon Dioxide Concentration Sensor [70-WA/Flcs-10] (*A*) ..... Je 43
A Fluidic Fuel Control Valve for Turbine Engines [71-GT-44] (*A*) ..... Ag 45
Fluidic Instrument Pressure Regulator [70-WA/Flcs-4] (*A*) ..... Je 43
Fluidic Temperature Control for Liquid-Cooled Space Suits [70-WA/Flcs-19] (*A*) ..... Je 44
Fluidic Water Control for Water-Closet Tanks [70-WA/Flcs-11] (*A*) ..... Je 43
Free-Surface Vibrations of a Magnetic Liquid [71-Vibr-24] (*A*) ..... N 50
A Generalized Static Model for Fluidic Impact Modulators [70-WA/Flcs-2] (*A*) ..... Je 43
Hydro-Rotational Stability of a Slender Plate in a Rectangular Flow Channel [71-Vibr-37] (*A*) N 51
Lumped Parameter Modeling of a Nonlinear Pneumatic-Mechanical System [71-Vibr-41] (*A*) N 51
Measurement of the Characteristic Impedance of Fluidic Lines [70-WA/Flcs-14] (*A*) ..... Je 44
A Newly Developed Output Detector for Fluidic Devices [70-WA/Flcs-7] (*A*) ..... Je 43
A Note on the Defined Region Geometry for High-Gain Proportional Amplifiers [70-WA/Flcs-12] (*A*) ..... Je 44
A Simplified Two-Dimensional Jet Reattachment Model [70-WA/Flcs-8] (*A*) ..... Je 43
The Suspension Bridge: Its Aeroelastic Problems [71-Vibr-38] (*A*) ..... N 51
A Synopsis of the Use of Fluerics in Medicine [70-WA/Flcs-16] (*A*) ..... Je 44
Theory for the Determination of Flutter Speed of a Class of Hydrofoils [71-Vibr-19] (*A*) ..... N 49
Three-Dimensional Turbulent Jet Reattachment [70-WA/Flcs-5] (*A*) ..... Je 43
Transient Response of Fluid Lines Including Frequency Modulated Inputs [70-WA/Flcs-1] (*A*) ..... Je 42
Transmission of a Fluidic Signal at Intermediate Distances [70-WA/Flcs-15] (*A*) ..... Je 44
Vortex Excitation of Metal Bellows [71-Vibr-22] (*A*) ..... N 50
Vortex Induced and Forced Switching of Two-Dimensional Jets [70-WA/Flcs-13] (*A*) ..... Je 44
Fluidization
Heat Transfer Characteristics in Air Fluidized Solids up to 900 F [70-WA/Temp-3] (*A*) My 54
Fluids
See also Boundary Layers; Cavities; Flow; Gases; Liquids; Vapor
Analysis of Turbulent Forced-Convection Heat Transfer to a Supercritical Fluid [71-HT-26] (*A*) O 62
An Analysis of Vane-in-Rotor Pump [70-WA/FE-21] (*A*) ..... F 74
An Approximate Analysis of Gaseous Film Cooling with Constant Fluid Properties [71-GT-3] (*A*) Ag 44
Basic Geometric Methods in Helical Lobe Compressor Design [70-WA/FE-23] (*A*) ..... F 74
Computer Aided Mathematical Analysis of Fluid Power Systems [71-DE-29] (*A*) ..... Jl 47
Confined Jet Mixing for Nonseparating Conditions [70-WA/FE-2] (*A*) ..... F 71
A Continuum Theory of Fluid Saturated Porous Media [70-WA/APM-36] (*A*) ..... Je 47
On the Correlation of Analytical and Experimental Free Shear Layer Similarity Profiles by Spread Rate Parameters [70-WA/FE-12] (*A*) ..... F 72
Development and Testing of Techniques for Oscillating Pressure Measurements Especially Suitable for Experimental Work in Turbomachinery [71-FE-28] (*A*) ..... S 52
Drag Force Measurements of a Compressible Turbulent Boundary Layer on an Adiabatic Smooth Flat Plate [70-WA/FE-26] (*A*) .... F 74
Effect of Artificial Surface Roughness on Heat Transfer and Pressure Drop for a High Prandtl Number Fluid in Laminar Flow [71-HT-36] (*A*) O 63
Effect of Normal Shock on Turbulent Boundary-Layer Parameters [71-FE-16] (*A*) ..... Ag 55
Effects of Heat and Mass Transfer on Rayleigh-Taylor Instability [71-FE-7] (*A*) ..... Ag 54
Some Effects of Injecting Cutting Fluids Directly into the Chip-Tool Interface [70-WA/Prod-2] (*A*) ..... Mr 59
Evaluating the Interactions of Electrostatic Fields with Fluid Flows [71-DE-41] (*A*) ..... Ag 46
Evaluation of Angle to be Subtended by the Spiral of Semispiral Casings [70-WA/FE-18] (*A*) .. F 74
An Experimental Study of Rectilinear Jet-Flap Cascades [71-FE-14] (*A*) ..... Ag 55
An Explicit Scheme for the Calculation of Three-Dimensional Turbulent Boundary Layers [71-FE-19] (*A*) ..... S 51
Fluid Transient Conditions in Condenser Cooling Water Systems [70-WA/FE-25] (*A*) ..... F 74
Fluids for Deep Sea Applications [71-UnT-4] (*A*) D 46
Free Convection Through Vertical Plane Layers of Non-Newtonian Power Law Fluids [70-WA/HT-1] (*A*) ..... Ap 58
Free-Convective Heat Transfer to a Supercritical Fluid [71-HT-27] (*A*) ..... O 62
Frequency Response of Fluid Lines with Nonlinear Boundary Conditions [70-WA/FE-6] (*A*) ... F 72
High Entrainment Ejector Design [71-FE-34] (*A*) S 52
On the Influence of Water Turbine Characteristic on Stability and Response [70-WA/FE-15] (*A*) F 73
Laser Doppler Measures Fluid Velocity (*NTB*) Ag 37
Lubrication Theory for Micropolar Fluids [71-APM-N] (*A*) ..... O 59
On the Measurement of Fluctuating Pressure in the Mixing Zone of a Round Jet [71-FE-31] (*A*) S 53
The Mixing of Two Parallel Streams of Dissimilar Fluids
Part 1: Analytical Development [70-WA/APM-37] (*A*) ..... Je 47
(Turbulent Mixing of Two Parallel Streams)
Part 2: An Experimental Investigation [70-WA/APM-38] (*A*) ..... Je 47
The Natural Frequencies of Two Spherical Bubbles Oscillating in Water [70-WA/FE-7] (*A*) .... F 72
Noise Abatement in Industry
Interaction of Sound and Structures
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Optimum Vane Number and Angle of Centrifugal Pumps with Logarithmic Vanes [70-WA/FE-20] (*A*) ..... F 74
Performance Map of a Heat Pipe (*NTB*) ..... Je 31
On the Prediction of Aerodynamically Created Sound Pressure Level of Control Valves [70-WA/FE-28] (*A*) ..... F 74
A Prediction of Water-Entry Cavity Shape [70-WA/FE-8] (*A*) ..... F 72
A Study of Contrarotating Tubes Based on Design Efficiency [70-WA/FE-17] (*A*) ..... F 73
Thermal Effects in the Free Oscillation of Gas Bubbles [70-WA/FE-11] (*A*) ..... F 72
Transient Response of Fluid Lines Through Use of Infinite Products [70-WA/FE-22] (*A*) ..... F 74
A Two-Dimensional Analysis of a Heated Free Jet at Low Reynolds Numbers [70-WA/FE-3] (*A*) ..... F 71
Using Viscoelastic Coatings to Reduce Structure-Borne Noise into a Fluid [71-Vibr-29] (*A*) .. N 50
Variational Method for a Pseudoplastic Fluid in a Laminar Boundary Layer over a Flat Plate [70-WA/APM-39] (*A*) ..... Je 47
Volume-Checking Tool (*NTB*) ..... F 50
Fluorination
Rolling-Element Fatigue and Lubrication with Fluorinated Polyethers at Cryogenic Temperatures [70-Lub-17] (*A*) ..... Ja 44
Flutter
Theory for the Determination of Flutter Speed of a Class of Hydrofoils [71-Vibr-19] (*A*) ..... N 49
Flux
Mass Flux and Enthalpy Distribution in a Rod Bundle for Single- and Two-Phase Flow Conditions [70-WA/HT-8] (*A*) ..... Ap 59
Surface Temperatures and Heat Fluxes Associated with the Evaporation of a Liquid Film on a Semi-Infinite Solid [71-HT-C] (*A*) ..... N 58
Flyash
Ice Cubes and Champagne (*PB*) ..... O 51
Sulfur Oxide Control and Fly Ash Utilization [71-Pwr-1] (*A*) ..... D 51
Flywheels
Determining Critical Speeds of a Crankshaft-Flywheel Assembly for an Outboard Motor [71-Vibr-54] (*A*) ..... N 52
Minimization of Mechanism Oscillations Through Flywheel Tuning [70-Mech-15] (*A*) ..... Ja 47
Foam
Effects of Polyurethane Foam on Fuel System Contamination [71-GT-54] (*A*) ..... Jl 39
Fog
Anti-Fog Coating (*NTB*) ..... O 44
Foils
See Bearings
Folsom, Richard Gilman elected 91st president (1972–1973) of ASME N 84; retires after more than 13 years as president of Rensselaer Polytechnic Institute and receives 44th Lamme Gold Medal Award from ASEE O 89; awarded ASME Honorary Membership at 1970 WAM and receives award ..... Ja 75; S 91
Foods
Freeze-Drying of Bodies Subject to Radiation Boundary Conditions [71-HT-5] (*A*) ..... O 61
Footing
Dynamic Response of a Rigid Footing Bonded to an Elastic Half Space [71-APMW-15] (*A*) .. N 56
Footlik, Irving elected secretary of Association of Professional Materials Handling Consultants ..... Ap 85
Forbes, Edward C. reelected a director of the three mutual funds organized by National Life Insurance Co. of Vermont ..... Ap 85
Force
See also Analysis Methods
An Analysis of Forces at the Pivot Bearing of a Compound Pendulum [71-APM-H] (*A*) .... O 60
Computation of Force Traces for the Rolamite [70-Mech-10] (*A*) ..... Ja 46
Concentrated Forces on Shallow Cylindrical Shells [70-WA/APM-2] (*A*) ..... My 57
Dynamometer for Drilling Force Measurement [71-Prod-7] (*A*) ..... Jl 49
Forces on Submarine Pipelines from Steady Currents [71-UnT-3] (*A*) ..... D 46
On Kinematic and Force Analysis of Peaucellier's Linkage [70-Mech-47] (*A*) ..... Ja 51

Force, d'Alembert
Development and Application of a Generalized d'Alembert Force for Multifreedom Mechanical Systems [70-Mech-25] (*A*).....Ja 48
Ford Motor Co.
Contract for Improved Crashworthiness (*NB*) N 69
Foreman, Harry (*editor*)
"Nuclear Power and the Public" (*BR*).....D 57
Forging
An Analysis of the Forging of a Flat Ring [70-WA/Prod-28] (*A*).....Mr 62
Prediction of Loads and Stresses in Closed-Die Forging [70-WA/Prod-8] (*A*).....Mr 60
Robot Forges Ahead (*BTR*).....Je 35
Speed Effects in Forging Lubrication [70-Lub-11] (*A*).....Ja 42
Ultrasonic Inspection of Cold Forgings (*BTR*) S 39
Forklift
See Trucks
Forman, W. R.
Kumukahi [based on 70-WA/UnT-11].....Ag 9
Kumukahi [70-WA/UnT-11] (*A*).....Je 46
Forman, W. W.
An Inventory of the Biomass—An Ecological Approach to Environmental Surveillance [70-WA/PID-12] (*A*).....Mr 64
Forming, Formulation
Checking Workpiece Profiles (*OS*).....Je 38
Evaluation of Machinability and Machining Parameters of Cold Formed Steel Parts [71-DE-42] (*A*).....Ag 46
Use of Computers to Aid Corrective Forming of Complex Shapes [71-Prod-10] (*A*).....Jl 49
Forrestal, M. J.
An Experiment on Laser-Generated Stress Waves in a Circular Elastic Ring [71-APMW-2] (*A*) N 55
Forristall, G. D. deceased.....N 93
Forstall, Walton elected Fellow ASME..Mr 85
Fort St. Vrain, Colorado
Nuclear Fuel (*OS*).....Jl 34
Forwood, W. C.
Overland Belt Conveying of Jamaican Bauxite [70-WA/MH-5] (*A*).....My 53
Foss, J. F.
A Note on the Defined Region Geometry for High-Gain Proportional Amplifiers [70-WA/Flcs-12] (*A*).....Je 44
Fossil Fuels
See Fuels
Foster, A. M.
A Design Procedure for a Class of Distributed Parameter Control Systems [70-WA/Aut-6] (*A*) F 69
Foster, J. E.
An Experimental and Numerical Study of Elastic Strain Waves on the Center Line of a 6061-T6 Aluminum Bar [71-APMW-22] (*A*).....N 57
Foster, K.
A Computer-Aided Design Method Specially Applicable to Fluidic-Pneumatic Sequential Control Circuits [70-WA/Flcs-17] (*A*).....Je 44
Foster, T. G.
Friction-Instability: A New Design Parameter for Brakes [71-DE-K] (*A*).....Jl 48
Fowler, Timothy J. appointed to position of Engineering Fellow in Monsanto Co.'s Central Engineering Dept.....S 98
Fowles, P. E.
A Thermal Elastohydrodynamic Theory for Individual Asperity-Asperity Collisions [70-Lub-25] (*A*).....Ja 45
Fox, J. D.
Shakedown of Pressure Vessels with Ellipsoidal Heads [71-PVP-34] (*A*).....Ag 53
Fox, R. L.
A Mathematical Programming Approach to the Design of a Transmission [71-DE-16] (*A*)..Jl 46
Optimum Design of a Linear Multi-Degree-of-Freedom Shock Isolation System [71-Vibr-81] (*A*).....D 52
Fox, Rudolph H. deceased.....Ja 107
Fracture
Analysis of Brittle Fractures During Fabrication and Testing [71-PVP-53] (*A*).....S 50
Analysis of Radiation-Induced Embrittlement Gradients on Fracture Characteristics of Thick-Walled Pressure Vessel Steels [71-PVP-7] (*A*) Ag 50
The Biomechanics of Torsional Fractures: The Effect of Loading on Ultimate Properties [70-WA/BHF-9] (*A*).....Ap 64
The Development of a Turbine Wheel Design Criterion Based upon Fracture Mechanics [71-GT-10] (*A*).....Ag 44
Fatigue and Fracture Reliability Analysis of Pressure Vessels [71-PVP-47] (*A*).....S 48
Fatigue-Crack Growth Rates and Fracture Toughness Study of Welded Aluminum Alloy 5083 [70-WA/PVP-5] (*A*).....F 76
Fracture Mechanics and Nondestructuve Testing of Brittle Materials [71-PVP-4] (*A*).....Ag 50
Fracture of Structural Metals as Related to Pressure-Vessel Integrity and In-Service Monitoring [71-PVP-60] (*A*).....S 50
Fracture Safety Analysis Concepts for Nuclear Pressure Vessels, Considering the Effects of Irradiation [70-WA/Met-2] (*A*).....My 52
Fracture Toughness of ASTM A533 Grade B Class 1 Heavy Section Submerged Arc Weldments [71-Met-B] (*A*).....Ag 48
Local and Gross Deformations in Cracked Metallic Plates and an Engineering Ductile Fracture Analysis [71-PVP-52] (*A*).....S 48
A Reassessment of Fracture-Safe Operating Criteria for Reactor Vessel Steels Based on Charpy-V Performance [70-WA/Met-1] (*A*) My 52
Shear Fatigue Crack Propagation and Shear Fracture in a Ductile Steel HY-130 [71-PVP-54] (*A*).....S 50
Use of Fracture Mechanics in Reactor Vessel Surveillance [70-WA/Met-3] (*A*).....My 52
Fragmentation
Velocities of Fragments from Bursting Gas Reservoirs [71-PVP-14] (*A*).....Ag 51
Frames
The Optimum Design of Spatial Frames Using the Method of Constrained Steepest Descent with State Equations [71-DE-H] (*A*).....Jl 48
France
More Aluminum in Cars (*OS*).....Ag 42
Phenix Design and Preliminary Studies on 1000-MWe Fast Reactor [71-NE-18] (*A*).....Jl 44
France, D. M.
Analytical Solution to Steady-State Heat-Conduction Problems with Irregularly Shaped Boundaries [71-HT-P] (*A*).....N 59
Francis, G. P.
Measurement of Sequential Velocity Development in the Aorta [70-WA/BHF-13] (*A*).....Ap 63
Francis, T. M. deceased.....N 93
Francis Turbines
See Turbines, Francis
Franke, Milton E. appointed professor of mechanical engineering in the Department of Aero-Mechanical Engineering at Air Force Institute of Technology, Wright-Patterson Air Force Base, Dayton, Ohio.....Ap 85
Frankel, V. H.
The Biomechanics of Torsional Fractures: The Effect of Loading on Ultimate Properties [70-WA/BHF-9] (*A*).....Ap 64
Elastic Analysis of Condylar Structures [70-WA/BHF-1] (*A*).....Ap 62
Franz, Frederick L. deceased.....My 91
Freberg, Carl R. elected Fellow ASME...F 102
Frederking, R.
An Experimental Evaluation of Plasticity Theories for Anisotropic Metals [70-WA/APM-17] (*A*) My 58
Freedom
Contributions to the Determination of the Equations of Motion for Multidegree of Freedom Systems [70-Mech-29] (*A*).....Ja 18
Degrees of Freedom of Motion in Mechanisms [70-Mech-26] (*A*).....Ja 48
Hydraulically Actuated Quadraplegic Arm Appliance with Six Degrees of Freedom [70-Mech-55] (*A*).....Ja 51
A Single Joystick Hydraulic Control System with Six Independent Simultaneous Velocity Proportional Degrees of Freedom [70-Mech-54] (*A*) Ja 51
Freeman, Mathew L. appointed manager of engineering of Masoneilan's Norwood Operation Ja 105
Freeman Scholars
New ASME Freeman Scholars Selected; Reviews to Be Presented at WAM.....Je 56
Freezing
Freeze-Drying of Bodies Subject to Radiation Boundary Conditions [71-HT-5] (*A*).....O 61
Freight
See Cargo Handling; Railroad Cars and Equipment
French, C. C. J.
Diesel Research and Development Techniques [71-DGP-13] (*A*).....Ag 49
French, Kenneth E.
Identifying the Engineer (*C*).....Ag 57
Frequencies
Discrete Frequency Noise from Lifting Fans [71-GT-12] (*A*).....Jl 36
The Effects of Shear Deformation and Rotary Inertia on the Lateral Frequencies of Cantilever Beams in Bending [71-Vibr-79] (*A*).....D 52
The Frequency Response of First and Second Order Lag Systems to Pulse Width Modulated Signals [70-WA/Aut-8] (*A*).....F 70
Frequency Response of Fluid Lines with Nonlinear Boundary Conditions [70-WA/FE-6] (*A*) F 72
Frequency Response of Pool Boiling Plants [71-HT-A] (*A*).....N 58
The Natural Frequencies of Two Spherical Bubbles Oscillating in Water [70-WA/FE-7] (*A*)....F 72
Natural Frequency Determination of Long Span Floor Slabs [71-Vibr-8] (*A*).....N 48
A Note on the Calculation of Torsional Natural Frequencies of Branch Systems [71-Vibr-83] (*A*) N 54
Relationship Among Frequency, Amplitude, Damping and Human Awareness for Floor Vibration Due to Impact [71-Vibr-44] (*A*)..N 51
Sum and Difference Frequencies in Vibration of High Speed Rotating Machinery [71-Vibr-103] (*A*).....D 54
Transient Response of Fluid Lines Including Frequency Modulated Inputs [70-WA/Flcs-1] (*A*).....Je 42
Fretting
Fretting and Fretting-Fatigue in Metal-to-Metal Contacts [71-DE-38] (*A*).....Ag 46
Freudenstein, F.
An Application of Boolean Algebra to the Motion of Epicyclic Drives [70-Mech-28] (*A*).....Ja 48
Dynamic Analysis of Mechanical Systems with Clearances
Part 1: Formation of Dynamic Model [70-Mech-64] (*A*).....Ja 52
Part 2: Dynamic Response [70-Mech-65] (*A*) Ja 52
Dynamic Analysis of Mechanisms Using Screw Coordinates [70-Mech-41] (*A*).....Ja 50
Kinematic Analysis of Spatial Mechanisms by Means of Screw Coordinates
Part 1—Screw Coordinates [70-Mech-13] (*A*) Ja 47
Part 2—Analysis of Spatial Mechanisms [70-Mech-14] (*A*).....Ja 47
Freudenstein's Equation
Extension of Freudenstein's Equation to Geared Linkages [70-Mech-32] (*A*).....Ja 49
Freund, Clement receives Engineering Society of Detroit's highest membership honor, "The Distinguished Member Service Award," of 1971.....S 98
Freund, L. B.
Guided Surface Waves on an Elastic Half Space [71-APM-7] (*A*).....S 55
Frey, Carl
Engineering: What Does the Future Hold? [based on 71-DE-30].....S 19
What Does the Future Hold for the Engineer? [71-DE-30] (*A*).....Jl 47
Frick, R. E.
The Many Roles of a Consulting Engineer [71-IPwr-6] (*A*).....S 54
Friction
A Comparison of the Frictional Losses in Hydrostatic and Conventional Extrusion Processes with Hydrodynamic Lubrication [70-Lub-26] (*A*).....Ja 45
Friction-Instability: A New Design Parameter for Brakes [71-DE-K] (*A*).....Jl 48
High-Speed Ice Train [based on 70-WA/RR-3] Je 14
High-Speed Ice Train (*C*).....Ag 57
Coefficient of Friction of Ice at High Speed—Application to a High Speed Train [70-WA/RR-3] (*A*).....Je 42
An Instrument for Skin-Friction Measurements in Thin Boundary Layers [71-FE-27] (*A*).....S 52
Oil Film Thickness and Rolling Friction in Elastohydrodynamic Point Contact [70-Lub-2] (*A*) Ja 42
Shear Strength and Friction of Polymers Under High Pressure [70-WA/PT-1] (*A*).....Mr 65
Skin Friction Drag and Velocity Profile Measurement Techniques in Two-Phase Flow [71-FE-32] (*A*).....S 52
Friedeberg, Solon E. elected Fellow ASME Mr 85
Friedman, E.
Strain Concentration Analysis Using the Finite Element Method [71-PVP-39] (*A*).....Ag 53
Friedman, Walter F. elected president of Association of Professional Materials Handling Consultants.....Ap 85
Friesem, A. A.
Holographic Detection of Microcracks [71-Met-C] (*A*).....Ag 48
Frigid Environment
Process Plant Design for an Extremely Cold Environment [71-Pet-7] (*A*).....D 48
Fritz, Robert J.
The Effect of Liquids on the Dynamic Motions of Immersed Solids [71-Vibr-100] (*A*).....D 53
Supply of Engineers (*C*).....Ja 55

Fruchtman, I.
The Supersonic Turbine—A Design and Cascade Study [71-GT-76] (*A*) ..... Jl 41
Fu, C. C.
Dynamic Characteristics of a Vibrating Plate Compactor [71-Vibr-18] (*A*) ..... N 49
Fuchs, H. O.
Use of Computers to Aid Corrective Forming of Complex Shapes [71-Prod-10] (*A*) ..... Jl 49
Fuel Pumps
See Pumps, Fuel
Fuel
Cleaner Fuel Through Nitrogen Inserting [71-GT-45] (*A*) ..... Jl 38
Cleaner Fuels from Coal (*NB*) ..... D 66
Coal [1971 outlook] (*NR*) ..... F 88
The Combustion of Heavy Distillate Fuels in Heavy Duty Gas Turbines [71-GT-56] (*A*) .. Jl 39
Dominant Mechanisms in the Combustion of Coal [70-WA/Fu-2] (*A*) ..... F 75
Effects of Polyurethane Foam on Fuel System Contamination [71-GT-54] (*A*) ..... Jl 39
Electronic Versatility for Fuel Economy in Turbine Powered Vehicles [71-GT-31] (*A*) .... Ag 45
Engineering a Better Environment
4: An Engineer Looks at the Energy Dilemma F 40
The Energy Dilemma (*C*) ..... Je 50
Operation Arctic (*C*) ..... Ap 68
7: The Environment-Energy Balance: Needed Actions ..... My 33
Environment-Energy Balance (*C*) Jl 51; Ag 56
Fast Reactor Fuel (*PB*) ..... Je 36, 37
Flames, Ions, and Electric Fields [70-WA/Fu-4] (*A*) ..... F 75
A Fluidic Fuel Control Valve for Turbine Engines [71-GT-44] (*A*) ..... Ag 45
Fuel Additives (*NB*) ..... Je 58
Fuel Availability—Coal Is Topic for Pittsburgh Section of ASME ..... Ap 79
A Fuel for Total Energy [71-GT-55] (*A*) .... Jl 39
Fuel Storage Tanks (*OS*) ..... F 63
Gas-Cooled Fast Reactor Refueling System [71-NE-8] (*A*) ..... S 57
Gas Turbine Testing on Naval Distillate Fuel [71-GT-62] (*A*) ..... Jl 39
Heat-Transfer Parameters and Transport Properties for Air and Jet Fuel-Air Mixtures [71-HT-41] (*A*) ..... N 58
How Will We Meet the Demand for Electrical Power in 1980? [70-WA/Fu-3] (*A*) ..... F 75
Hydrogen-Fueled IC Engine (*BTR*) ..... N 40
The Interaction of Air Motion, Fuel Spray, and Combustion in the Diesel Combustion Process [71-DGP-2] (*A*) ..... Ag 48
Leadless Gas a Fire Hazard? (*BTR*) ..... O 43
LMFBR Fuel Shipping—Containment and Heat Transport [71-NE-6] (*A*) ..... Jl 42
New Fuels—Old Coal [71-Pet-15] (*A*) ..... D 48
Plume Rise and Dispersion in a Local Wind System [70-WA/Fu-1] (*A*) ..... F 75
Preparing Low Sulfur Residual Fuel Oils: What It Does to the Oil; What It Means to the Consumer [71-IPwr-9] (*A*) ..... S 54
Two Years Experience in Handling and Burning No. 6 Low Sulfur Fuel Oil [71-IPwr-5] (*A*) .. S 53
Fujii, S.
Some Observations on the Velocity Profiles in Fully Developed Viscous Flow in Turbomachines [70-WA/FE-24] (*A*) ..... F 74
Fujii, T.
Analysis of Turbulent Forced-Convection Heat Transfer to a Supercritical Fluid [71-HT-26] (*A*) O 62
Fulbright-Hays Program
Fulbright-Hays Awards (*EN*) ..... Ja 64
Fuls, G. Martin
Flow Transient Resulting from a Loss of Pumping Power in a Pressurized Water Nuclear Reactor [70-WA/NE-4] (*A*) ..... My 55
Fumes
Leadless Gas a Fire Hazard? (*BTR*) ..... O 43
Pollution Fighters (*PB*) ..... S 44
Function Generation
Kinematic Synthesis of a Geared Five-Bar Function Generator [70-Mech-2] (*A*) ..... Ja 45
Multiply Separated Position Design of the Geared Five-Bar Function Generator [70-Mech-16] (*A*) Ja 47
Fung, Y. C.
Slow Particulate Viscous Flow in Channels and Tubes—Application to Biomechanics [71-APM-R] (*A*) ..... O 59
Furman, T. T.
Design of Pressure Vessels for Optimized Cost [70-WA/PVP-4] (*A*) ..... F 76
Furnaces
Big Vacuum Furnace (*PB*) ..... Je 36, 37
Combustion Noise and Its Control in Process Plant Furnaces [71-Pet-6] (*A*) ..... D 47
Fuselage
Noise Abatement in Industry
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Response and Internal Noise of a Fuselage to Random Excitation [70-WA/DE-9] (*A*) F 66, Ap 55
Fusion
Controlled Fusion (*EN*) ..... D 68
Gene Fusion (*BTR*) ..... Jl 27
Power in the Year 2001
Part 4—Rock Burning ..... D 27
Sea Burning ..... D 30
Future
As the President Sees It
Interfacing the Present with the Future ... O 92
Combined Helium and Steam Cycle for Nuclear Power Plants [based on 70-WA/NE-3] Ag 14
Combined Cycle (*C*) (*D*) (*AC*) ..... N 61
A Combined Helium and Steam Cycle for Nuclear Power Generation [70-WA/NE-3] (*A*) My 55
Energy's Role in Meeting the Needs of the 1970's [70-WA/Ener-9] (*A*) ..... Ap 62
Engineering: What Does the Future Hold? [based on 71-DE-30] ..... S 19
What Does the Future Hold for the Engineer? [71-DE-30] (*A*) ..... Jl 47
Engineering Water Resources for 2070 [based on 70-WA/PID-8] ..... Jl 7
Water Resources for 2070 (*C*) ..... D 56
Engineering Water Resources of the Future [70-WA/PID-8] (*A*) ..... Mr 64
ERC Mandate: Meet Future Energy Needs (*TL*)
"Electric Utilities Industry Research and Development Goals through the Year 2000" N 73
How Will We Meet the Demand for Electrical Power in 1980? [70-WA/Fu-3] (*A*) ..... F 75
IIT Students Probe Quality of Life in 21st Century (*EN*) ..... N 70
Power in the Year 2001
Part 1—Dawn of the Solar Age ..... S 24
Power in the Year 2001 (*C*) ..... N 60
Part 2—Thermal Sea Power ..... O 21
Part 3—Solar Power ..... N 33
Part 4—Rock Burning ..... D 27
Sea Burning ..... D 30
Power in the Year 2001 (*Ed*) ..... S 17
Power in the Year 2001 (*C*) ..... N 60
System Energy as a Factor in Considering Future Transportation [70-WA/Ener-8] (*A*) ..... Ap 61
21st Century? (*C*) ..... F 78

G

Gaberson, H. A.
Particle Motion on Oscillating Conveyors
Part 1: The Equations of Motion and the Rules for Predicting Motion from Transitions [71-Vibr-15] (*A*) ..... N 49
Part 2: Practical Solutions to the Equations of Motion and the Extension of the Theory to Beds of Granular Material [71-Vibr-16] (*A*) ..... N 49
Gabron, F.
Spaceborne Passive Radiators for Detector Cooling [71-Av-30] (*A*) ..... O 57
Gacesa, M.
Study of the Onset of Premature Heat-Transfer Crisis During Hydrodynamic Instability in a Full-Scale Reactor Channel [71-HT-11] (*A*) O 61
Gaddis, J. L.
An Approximate Analysis of Gaseous Film Cooling with Constant Fluid Properties [71-GT-3] (*A*) Ag 44
Gage, Stephen J. a White House Fellow for 1971–1972, one of 16 chosen for the program S 98; one of 16 selected for White House Fellows Program ..... D 80
Gages
Lasergage, Model 5900 (*OS*) ..... Ja 41
The Minimum Gage Problem in Thin Strip Rolling [70-Lub-24] (*A*) ..... Ja 45
Noncontacting Optical Strain Device (*NTB*) My 47
Gagnebin, Albert P. elected to board of directors of Ingersoll-Rand Co. Ja 105; receives Fellow ASME certificate ..... Mr 86
Galaxies
Life Clues in Interstellar Space (*BTR*) ..... O 43
Gallagher, T. F.
High-Capacity Belt Conveyor Systems for Handling Bulk Material [70-WA/MH-1] (*A*) My 53
Galowin, L. S.
Theoretical Analysis of Laminar Pipe Flow in a Porous Wall Cylinder [70-WA/Flcs-3] (*A*) Je 43
Gantayat, A. N.
Stress Analysis of B16.9 Tees by the Finite Element Method: A Progress Report [71-PVP-40] (*A*) Ag 53
Gantt Memorial Gold Medal
See Honors
Gaonkar, G. H.
Analysis and Physiological Monitoring of the Human Left Ventricle [70-WA/BHF-14] (*A*) Ap 63
Gaps
Predictions of Momentum Transfer Between Rotating Cylinders: The Narrow Gap Problem [71-APM-30] (*A*) ..... O 58
Garbage
See Oil Spills
Garcia de la Torre, L. deceased ..... O 91
Gardner, K. A.
Performance Changes of a Sodium-Heated Steam Generator [71-HT-15] (*A*) ..... O 62
Gardner, L. H. deceased ..... N 93
Garg, D. P.
A Computer-Oriented, Parameter-Space Approach to the Synthesis of Nonlinear Control Systems [70-WA/Aut-4] (*A*) ..... F 69
Garment Industry
Cut by the "Light Fantastic" (*BTR*) ..... Je 28
Garratt, Mansfield W., Sr. deceased ... Ja 107
Garrett, Carl J. appointed western regional manager in Power Services Dept. of Combustion Engineering, Inc., operating out of San Francisco ..... S 97
Garrett, Elmer E.
Power in the Year 2001 (*C*) ..... N 61
Garrett, R. E.
Automated Generation of Equations for Displacement Analysis of Spatial Mechanisms [70-Mech-43] (*A*) ..... Ja 50
Garrett, W. A.
Operating Experience and New Approaches Provide Basis for Portable 3500-hp Prime Mover Package [71-GT-51] (*A*) ..... Jl 38
Garza, L. R.
Free-Surface Vibrations of a Magnetic Liquid [71-Vibr-24] (*A*) ..... N 50
Gas Arctic Systems Study Group
Arctic Pipeline (*BTR*) ..... O 47
Gas Expanders
Ecologic and Economic Benefits of the Power Recovery Gas Expander [71-Pet-11] (*A*) ... D 48
Gas Lubrication
Air Bearings for High-Speed Mirrors Rotating in a Vacuum [70-Lub-15] (*A*) ..... Ja 43
The Influence of Wall Conductance on Performance of the MHD Hydrostatic Thrust Bearing [70-Lub-1] (*A*) ..... Ja 42
Investigation of the Spherical Hydrostatic Gas Bearing for Two-Axis Gyros [70-Lub-6] (*A*) Ja 42
A Numerical Method and Higher Approximations for a Self-Acting, Gas-Lubricated Bearing of Finite Length [70-Lub-23] (*A*) ..... Ja 45
Gas Path, Hot
Gas-Turbine Loading Schedule for Maximum Life of the Hot Gas Path Components [70-WA/GT-2] (*A*) ..... My 56
Gas Turbine Power Award
See Honors
Gas Turbines
See Turbines, Gas
Gases
See also Compressed Natural Gas (CNG); Liquid Natural Gas (LNG)
Addition of Heated Solid Particles to a Gas Flowing in a Pipe [71-FE-22] (*A*) ..... Ag 55
An Approximate Analysis of Gaseous Film Cooling with Constant Fluid Properties [71-GT-3] (*A*) Ag 44
Some Aspects of Gas-Solid Suspension Turbulence [71-FE-15] (*A*) ..... Ag 55
Coal Gasification (*NB*) ..... N 68
Converting Coal to Gas (*NB*) ..... Mr 73
Economics of Remote Data Processing for Oil and Gas Production [71-Pet-39] (*A*) ..... D 51
Experimental Study on the Dynamics of a Gas-Levitated Disk [71-APM-3] (*A*) ..... S 55
Gas-Cooled Fast Breeder Reactor Designs [71-NE-2] (*A*) ..... Jl 42
Gas Flow Control Employing Temperature and Pressure Compensation [70-WA/Aut-14] (*A*) F 70
Gas from Coal Essential (*NB*) ..... N 68
Gas Piping Design for High Speed Reciprocating Compressor Units [71-Pet-3] (*A*) ..... D 47
Infrared Detection of Gaseous Effluents (*BTR*) Mr 48
Internal Laminar Heat Transfer with Gas-Property Variation [71-HT-N] (*A*) ..... N 59
Light Gas Gun for Powder Compaction [based on 70-WA/PT-4] ..... Je 18
Laboratory-Size Light Gas Gun—Design and Operation [70-WA/PT-4] (*A*) ..... Mr 65

Gases (*Continued*)
Low-Speed Slip Flow over a Wedge [70-WA/APM-26] (*A*) ..... My 59
Nonlinear Response of Gas-Lubricated Shrouded Rayleigh-Step Thrust Pad [71-Vibr-75] (*A*) D 52
Prediction of the Thermal Conductivity Anomaly of Simple Substances in the Critical Region [71-HT-28] (*A*) ..... O 63
Rarefied Gas Flow Through Long Square Tubes [70-WA/PID-1] (*A*) ..... Mr 63
Recommended Practice for Most Efficient Use of Processed Exhaust Gas for Oil Production [71-Pet-23] (*A*) ..... D 49
Requirements of Packaged Gas Compressor Units [71-Pet-4] (*A*) ..... D 47
The Role of Chloride in the Corrosion Caused by Flue Gases and Their Deposits [70-WA/CD-1] (*A*) ..... Ap 64
The Story of a Synthesis Gas Compressor Failure [71-Pet-31] (*A*) ..... D 50
Thermal Effects in the Free Oscillation of Gas Bubbles [70-WA/FE-11] (*A*) ..... F 72
Turbulent Flow Between Parallel Plates with Gas Property Variation [71-FE-38] (*A*) ..... S 53
Velocities of Fragments from Bursting Gas Reservoirs [71-PVP-14] (*A*) ..... Ag 51
Volume Interchange Factors for Nonhomogeneous Gases [71-HT-19] (*A*) ..... O 62
Gasifiers
Experimental and Analytical Study of a Small Free-Piston Gasifier [71-DGP-5] (*A*) ..... Ag 48
Gaston, William I. deceased ..... My 91
Gastrock, B. A.
Nonsimilar Solution of the Laminar Boundary Layer in an Oscillatory Flow by an Integral Matrix Method [71-FE-10] (*A*) ..... Ag 54
Gatley, William S. receives Guerard Mackey Best Paper Award in 1971 from ASME Plant Engineering and Maintenance Division for paper presented at 1970 PEM Conference D 79
Engineering a Better Environment
6: Industrial Noise Control—Past, Present, and Future [based on 70-PEM-29] ..... Ap 29
Transient Response of a Vibration Isolation System [71-Vibr-33] (*A*) ..... N 50
Gaus, Joseph N. named general sales manager of Rexroth Corp., Easton, Pa. ..... F 101
Gauthier, C. J. elected as a new director, through 1974, of Chemetron Corp. ..... Jl 74
Gavigan, W. J.
Local and Gross Deformations in Cracked Metallic Plates and an Engineering Ductile Fracture Analysis [71-PVP-52] (*A*) ..... S 48
Gears, Gearing
See also Bars; Linkages; Mechanisms
AGMA Standards as Engineering Tools for the Rating, Design, Production, and Inspection of Gearing [71-DE-14] (*A*) ..... Jl 46
A Computer Algorithm to Design Compound Gear Trains for Arbitrary Ratio [70-Mech-31] (*A*) ..... Ja 49
Contact Ratio of Worm Gears [70-Mech-49] (*A*) Ja 51
Design and Development of a Boron-Glass-Epoxy Lightweight Composite Gear Case [71-GT-85] (*A*) ..... Jl 41
Dynamic Loads on Spur Gear Teeth by Analog Computation [71-DE-26] (*A*) ..... Jl 46
Dynamic Shock Phenomena in Rolling Mills [71-Vibr-95] (*A*) ..... D 53
The Dynamics of Gear Pair Systems [71-DE-23] (*A*) ..... Jl 46
Elliptical Gears [70-Mech-68] (*A*) ..... Ja 52
Extension of Freudenstein's Equation to Geared Linkages [70-Mech-32] (*A*) ..... Ja 49
Factors Affecting Design and Reliability of High Performance Gears in Process Compressor Trains [71-Pet-30] (*A*) ..... D 50
14-ft Plastic Gear (*PB*) ..... Ag 41
Gear Design: Dynamic Loads [based on 71-DE-1] O 29
Dynamic Loads on Gear Teeth, Design Applications [71-DE-1] (*A*) ..... Jl 44
Noise Abatement in Industry
Engine Combustion and Noise
Mechanical Aspects of Gear-Induced Noise in Complete Power Train Systems [70-WA/DGP-1] (*A*) ..... Ap 57
A Note on the Calculation of Torsional Natural Frequencies of Branch Systems [71-Vibr-83] (*A*) N 54
A Rating Formula for Fine Pitch Boundary Lubricating Gears [70-Mech-63] (*A*) ..... Ja 52
Three-Dimensional Analysis of Hypoid Gears [71-DE-D] (*A*) ..... Jl 48
Torsional Response of a Gear Train System [71-Vibr-77] (*A*) ..... D 52
Transient Torsional Vibration Due to Suddenly Applied Torque [71-Vibr-99] (*A*) ..... D 53
Gebhart, B.
Calibration of Constant-Temperature Hot-Wire Anemometers at Low Velocities in Water with Variable Fluid Temperature [71-HT-9] (*A*) O 61
Gee, C. F.
Marine Installation of a Gas Fired Turbine for Cryogenic Gas Processing [71-GT-28] (*A*) ..Jl 36
Geers, Thomas I. receives Henry Hess Award at 1970 WAM ..... Ja 74, 75
Geffroy, B.
Phenix Design and Preliminary Studies on 1000-MWe Fast Reactor [71-NE-18] (*A*) ..... Jl 44
Geiger, G. E.
Effect of Artificial Surface Roughness on Heat Transfer and Pressure Drop for a High Prandtl Number Fluid in Laminar Flow [71-HT-36] (*A*) O 63
Geinopolos, A.
Skimming Oil from Basins and Lagoons [based on 70-Pet-3] ..... Ap 24
Geissler, Henry deceased ..... My 91
Gems
Hot Ice (*PB*) ..... Mr 54, 55
Man-Made Gem Diamonds (*BTR*) ..... F 58
General Motors
Delco Electronics Division receives Elmer A. Sperry Award certificate of citation at 1970 WAM ..... Ja 76
Generators
Computed Performance Characteristics of Electrofluid Dynamic Colloid Generators [70-WA/Ener-5] (*A*) ..... Ap 61
Gas Turbine Generator (*OS*) ..... Ap 52
Optimization of Spherical Four-Bar Generators [70-Mech-46] (*A*) ..... Ja 50
Silencing Considerations for Large Gas Turbine Generator Sets [71-GT-26] (*A*) ..... Ag 45
Single Process Plant Application of a Gas Turbine Generator with Recovery Boiler [71-GT-30] (*A*) Jl 37
Undertuned (*PB*) ..... Ap 50, 51
The Use of a Planar Mechanism Synthesis to Produce a Spherical Path Generator Linkage [70-Mech-51] (*A*) ..... Ja 51
Generators, Gas-Turbine
Performance Evaluation of a 2.1-MW Gas Turbine Generator Set Using Computerized Data Acquisition [71-GT-36] (*A*) ..... Jl 38
Generators, Steam
Experience with Sodium-Heated Steam Generator [71-NE-15] (*A*) ..... Jl 44
A 1000-MWe LMFBR Steam Generator [71-NE-13] (*A*) ..... Jl 43
Performance Changes of a Sodium-Heated Steam Generator [71-HT-15] (*A*) ..... O 62
Selection of the Steam Generator for the Proposed 350-MW(e) Demonstration Plant [71-NE-5] (*A*) Jl 42
Sodium-Heated Modular Steam Generator Design and Development [71-NE-10] (*A*) ..... Jl 43
Genes
Gene Fusion (*BTR*) ..... Jl 27
Genin, Joseph
Squeeze Film Bearing for the Elimination of Oil Whip [70-Lub-8] (*A*) ..... Ja 42
Genoa Power Station
Design of the Supercritical 325-MW Unit Addition to Genoa Station No. 3 [71-Pwr-3] (*A*) .... D 51
Operating Experience and Availability of Genoa 3 Unit [71-Pwr-4] (*A*) ..... D 51
GEOALERT
GEOALERT Warning System (*NB*) ..... N 69
Geography
The Response of Narrow-Mouthed Harbors in a Straight Coastline to Periodic Incident Waves [70-WA/APM-46] (*A*) ..... Je 48
Geometry
Basic Geometric Methods in Helical Lobe Compressor Design [70-WA/FE-23] (*A*) ..... F 74
Computation of Force Traces for the Rolamite [70-Mech-10] (*A*) ..... Ja 46
Fluctuating Lift Forces of the Karman Vortex Streets on Single Circular Cylinders and in Tube Bundles
Part 1: The Vortex Street Geometry of the Single Circular Cylinder [71-Vibr-11] (*A*) ..... N 49
Part 2: Lift Forces of Single Cylinders [71-Vibr-12] (*A*) ..... N 49
Part 3: Lift Forces in Tube Bundles [71-Vibr-13] (*A*) ..... N 48
A Note on the Defined Region Geometry for High-Gain Proportional Amplifiers [70-WA/Flcs-12] (*A*) ..... Je 44
Optimization of the Constrained Machining Economics Problem by Geometric Programming [71-Prod-9] (*A*) ..... Jl 49
Prediction of the Geometry Changes of the Free Boundary During Upsetting by the Slip-Line Theory [70-WA/Prod-17] (*A*) ..... Mr 61
A Study of Plunge (or Form) Machining of Low-Carbon Resulfurized Steel on a Multispindle Automatic Screw Machine
Part 1: Influence of Speed, Feed, and Ingot Variation on Diameter Increase and Surface Finish in Prolonged Machining [70-WA/Prod-18] (*A*) ..... Mr 61
Part 2: Influence of Speed, Feed, and Duration of Cutting on Worn Tool Geometry [70-WA/Prod-19] (*A*) ..... Mr 62
Geophysics
Analyzing First Complete Geophysical Investigation
The Sea Floor (*NB*) ..... N 69
George, B. W.
Noise Abatement in Industry
Interaction of Sound and Structures
Multiple Excitations of Structures and Enclosures [70-WA/DE-8] (*A*) F 66, Ap 55
George, J. A.
Response of a Piped LMFBR to Primary System Pipe Rupture [71-NE-1] (*A*) ..... Jl 42
Geothermodynamics
Geothermal Resources (*OS*) ..... My 51
Gerlach, C. R.
Vortex Excitation of Metal Bellows [71-Vibr-22] (*A*) ..... N 50
Germany
Hanover Fair: No Recession (*OS*) ..... S 46
Gerwick, B. C., Jr.
Controlled Sinking of Large Concrete Ocean Structures [71-UnT-6] (*A*) ..... D 47
Ghista, D. N.
Analysis and Physiological Monitoring of the Human Left Ventricle [70-WA/BHF-14] (*A*) Ap 63
Giardini, A. A.
The Torsional Shear Strength of Pyrophyllite Under Increasing Confining Stress to Approximately 70 Kilobars [70-WA/PT-3] (*A*) ... Mr 65
Gibson, D. C.
The Kinetic and Thermal Expansion of Vapor Bubbles [71-FE-13] (*A*) ..... Ag 55
Gibson, Harold D. deceased ..... Ja 107
Gibson, John R. promoted to senior vice-president by Bilbyrne Corp. ..... O 89
Gibson, R. W.
Eight-Link Coupler Mechanism with Two Parallelogram Loops [70-Mech-52] (*A*) ..... Ja 51
Giedt, W. H.
Depth of Penetration During Electron Beam Welding [70-WA/HT-2] (*A*) ..... Ap 58
Gifford, F. E.
Plasma Treatment of Railway Rails to Improve Traction [70-WA/RR-1] (*A*) ..... Je 42
Gilbert, A. C.
A Note on the Calculation of Torsional Natural Frequencies of Branch Systems [71-Vibr-83] (*A*) N 54
Gilbert, G. B.
High Entrainment Ejector Design [71-FE-34] (*A*) S 52
The Use of Flow Modeling Techniques to Obtain a Minimum Loss Design for the Stack Entrance Section of a 700-ft Power Plant Chimney [70-WA/Pwr-1] (*A*) ..... My 55
Work Exchangers for Energy Recovery in High-Pressure, Incompressible Flow Processes [70-WA/PID-11] (*A*) ..... Mr 64
Gilbert, R. S.
Tracer Tests for Nuclear Power Plant Steam Turbines [based on 69-WA/PTC-3] ..... Ja 15
Gilde, Louis C.
Engineering a Better Environment
5: Waste Water Treatment Enhances Environment [based on 70-PEM-19] ..... Mr 40
Giles, O.
New Design Concepts and Materials for Mechanical Shaft Seals [71-Pet-35] (*A*) ..... D 51
Gilkey, Herbert T. joins Air-Conditioning and Refrigeration Institute staff in Arlington, Va., as assistant to managing director ..... Mr 84
Gilliam, W. C., Jr.
Electroplating and Electroless Plating of Plastics [71-DE-35] (*A*) ..... Jl 47
Gillick, L. H. deceased ..... Ag 87
Gillivan, Charles Z. deceased ..... Ja 107
Gilmartin, R. P.
Preparing Low Sulfur Residual Fuel Oils: What It Does to the Oil; What It Means to the Consumer [71-IPwr-9] (*A*) ..... S 54
Gilreath, H. E.
Transition and Mixing in the Shear Layer Produced by Tangential Injection in Supersonic Flow [71-FE-24] (*A*) ..... S 51
Gilruth, Robert Rowe awarded 1970 ASME Medal in absentia Ja 75; receives Medal My 87
Watt (James) International Gold Medal Awarded to Dr. Robert R. Gilruth by Institute of Mechanical Engineers of Great Britain (*NR*) .. D 64
Gilstrap, L. O., Jr.
Keys to Developing Machines with High-Level Artificial Intelligence [71-DE-21] (*A*) ..... Jl 46

Glass
Design and Development of a Boron-Glass-Epoxy Lightweight Composite Gear Case [71-GT-85] (*A*) ..... Jl 41
The Effect of Heat Transfer on the Flow of High Temperature Glass Through Small Nozzles [70-WA/HT-12] (*A*) ..... Ap 59
An Experimental and Analytical Study of Radiative and Conductive Heat Transfer in Molten Glass [70-WA/HT-10] (*A*) ..... Ap 59
Ice Cubes and Champagne (*PB*) ..... O 51
Light Benders (*PB*) ..... My 48
Mathematical and Experimental Modeling of the Circulation Patterns in Glass Melts [70-WA/HT-11] (*A*) ..... Ap 59
Glauch, Edmund S. deceased ..... Ja 107
Gleason Works (OTC)
Machine Manufacturing Facility
Gleason Works, S. A., subsidiary formed for machine manufacturing facility in Mons, Belgium (*OS*) ..... O 53
Glew, C. A. W.
The Octave Band Vibration Analyzer as a Machinery Defect Indicator [71-DE-47] (*A*) .. Ag 47
Glicksman, L. R.
An Experimental and Analytical Study of Radiative and Conductive Heat Transfer in Molten Glass [70-WA/HT-10] (*A*) ..... Ap 59
A Two-Dimensional Analysis of a Heated Free Jet at Low Reynolds Numbers [70-WA/FE-3] (*A*) F 71
Gloyna, F. L.
Noise Abatement in Industry
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Goel, R. P.
Elastic-Plastic Plane Waves with Combined Compressive and Two Shear Stresses in a Half Space [71-APM-10] (*A*) ..... S 56
Goglia, Mario J. chairman of Council for Graduate and Continuing Education on American Society for Engineering Education 1971–1972 board of directors ..... N 89
Gohar, R.
Oil Film Thickness and Rolling Friction in Elastohydrodynamic Point Contact [70-Lub-2] (*A*) Ja 42
Goland, Martin ASME Honorary Membership conferred at 1970 WAM Ja 75; receives award My 88; nominated by President Nixon, for a term expiring July 19, 1972, to serve as member of first National Commission of Libraries and Information Science ..... S 97
Golden, J.
Engineering a Better Environment
10: Designing an Air Monitoring Facility .. Ag 24
Air Monitoring Facility (*C*) (*AC*) ..... N 60
Goldhoff, Robert M. receives University of Cincinnati Distinguished Engineering Alumnus Award ..... Je 78
Goldmann, K.
Experience with Sodium-Heated Steam Generator [71-NE-15] (*A*) ..... Jl 44
Goldsmith, C. deceased ..... Ag 87
Goldstein, R. J.
Interaction of a Heated Jet with a Deflecting Stream [71-HT-2] (*A*) ..... O 60
Goldstein, S. R.
Gas Flow Control Employing Temperature and Pressure Compensation [70-WA/Aut-14] (*A*) F 70
Goldwag, E.
On the Influence of Water Turbine Characteristic on Stability and Response [70-WA/FE-15] (*A*) F 73
Golf
The Swing's the Thing (*BTR*) ..... N 43
Gomi, M.
Some Observations on the Velocity Profiles in Fully Developed Viscous Flow in Turbomachines [70-WA/FE-24] (*A*) ..... F 74
Goodell, Jack H. Bechtel Corp. vice-president to continue project management sponsorship of most key domestic power clients of Bechtel's Vernon Div. ..... Je 77
Goodman, Lawrence E. elected Fellow ASME Mr 85
Goods, Edward G.
ASME Employment Aids (*C*) ..... My 60
Gopalakrishnan, S.
A Numerical Technique for the Calculation of Transonic Flows in Turbomachinery Cascades [71-GT-42] (*A*) ..... Jl 38
Gordon, C. W. deceased ..... Jl 78
Gorrie, Harvard H. receives plaque of appreciation for service on SAMA board of directors ..... Jl 74
Gorski, Kenneth S. appointed product manager by Detroit Air Valves Section of the Hanna Fluid Power Div., Rex Chainbelt Inc. Je 77
Gorton, R. L.
An Experimental Study of Coolant Combustion Effects in Transpiration Cooling [71-GT-72] (*A*) Jl 40
Goss, C. D.
Influences of Size and Configuration on Cavitation in Submerged Orifice Flows [71-FE-39] (*A*) S 53
Gossard, D. C.
Automated Generation of Equations for Displacement Analysis of Spatial Mechanisms [70-Mech-43] (*A*) ..... Ja 50
Gottenberg, W. G.
Response of a Semi-Infinite Elastic Solid to an Arbitrary Line Load Along the Axis [71-APMW-1] (*A*) ..... N 55
Gould, E. deceased ..... Ag 87
Gouse, S. William, Jr. appointed associate dean of Carnegie Institute of Technology and of the School of Urban and Public Affairs .... Mr 84
Government
The Abandoned Car (*NB*) ..... Mr 72
Engineering a Better Environment
7: The Environment-Energy Balance: Needed Actions ..... My 33
Environment-Energy Balance (*C*) Jl 51; Ag 56
State Engineering Laws and Board Rules (*TL*)
"Synopsis of State Engineering Registration Laws and Policies and Procedures of State Boards" ..... Je 63
Gower, G. H.
Recommended Practice for Most Efficient Use of Processed Exhaust Gas for Oil Production [71-Pet-23] (*A*) ..... D 49
GRAD
See Engineers Joint Council
Gradients
See Simulation Methods
Gradowczyk, M. H.
Determination of the Duration of Memory for Viscoelastic Materials [70-WA/APM-4] (*A*) My 57
Graduates
How Old/Young Is the Grad? (*EN*) ..... D 69
Graf, William, Jr.
Environment-Energy Balance (*C*) ..... Jl 51
Graff, W. J.
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Machinery Noise May Indicate Loss of Efficiency and Severity of Dynamic Stresses [70-WA/Pet-2] (*A*) ..... Ap 55
Photoelasticity Applied to Analysis of Tubular Connections for Offshore Structures [71-Pet-27] (*A*) ..... D 50
Graham, J. B.
Failure Analysis of a Rotating Assembly [71-DE-17] (*A*) ..... Jl 46
Graham, J. W.
Optimal Bang-Bang Control for a Class of Distributed Parameter Systems [70-WA/Aut-15] (*A*) ..... F 70
Graham, Robert W.
Engineering a Better Environment
4: An Engineer Looks at the Energy Dilemma F 40
Velocity and Temperature Profiles in Near-Critical Nitrogen [71-HT-23] (*A*) ..... O 62
Grand Prix Race, 1971
Wide Open Engine (*PB*) ..... Ap 50
Grants, Project
Better Public Transportation for Aged (*NB*) .. D 67
EPA Awards Grants (*NB*) ..... D 67
Grants, Study
See also ASME Woman's Auxiliary
Energy and Power Program Financial Aid Available [at University of Pennsylvania] (*EN*) ..... D 69
Fulbright-Hays Awards (*EN*) ..... Ja 64
Grants Offered for Summer Fluid Dynamics Institute (*EN*) ..... Mr 74
New ASME Freeman Scholars Selected; Reviews to Be Presented at WAM ..... Je 56
1971–1972 Scholarship Awards Reported by ASME Woman's Auxiliary ..... O 84
Presidential Internships [in Science and Engineering] (*EN*) ..... D 68
Research Fellowships, Grants for Latin America (*EN*) ..... O 74
Student Summer Research (*EN*) ..... Je 60
Utilities Award Grants (*EN*) ..... My 77
Graphics
See also Stereographic Projection
Automatic Checkout of Complex Modules [71-Vibr-115] (*A*) ..... D 55
The Autotape/Autocheck System [71-Vibr-61] (*A*) N 53
Computer-Aided Methods to Relate Analytical and Graphical Design of Mechanisms [70-Mech-77] (*A*) ..... Ja 53
Design of Four-Bar Linkages Using Interactive Computer Graphics and Synthesis Curves [70-Mech-45] (*A*) ..... Ja 50
Graphical Display of Computer Simulated Unbalanced Rotor Response [71-Vibr-42] (*A*) .. N 52
Graphically Accessed Design System That Can Employ Existing Algorithms [71-Vibr-70] (*A*) N 54
Imaginative Imaging (*BTR*) ..... Ag 35
Optimum Allocation of Two-Dimensional Shapes [71-Vibr-68] (*A*) ..... N 54
Use of Optimization Techniques in Identifying a Shock Absorber: An Elementary Experience in Design Education [71-Vibr-69] (*A*) ..... N 53
Graphite
Advanced Composites Efforts—A Status Report of Air Force Programs with Graphite Reinforced Composites [71-DE-13] (*A*) ..... Jl 46
The Swing's the Thing (*BTR*) ..... N 43
Grapnel, Stefan L. deceased ..... Mr 88
Gray, K. O.
Procurement of Safe Viewports for Hyperbaric Chambers [71-PVP-1] (*A*) ..... Ag 49
Greb, N. deceased ..... Ag 87
Greece
New Desalination Plant (*OS*) ..... Mr 52
Greenhouses
The Effect of Solar Radiation on the Energy Balance of a Controlled-Environment Greenhouse [70-WA/Sol-3] (*A*) ..... F 64
Greenough, B. M.
Status of the LMSC Circulating Electrolyte Water Electrolysis System [71-Av-20] (*A*) .. O 56
Greenstreet, William L.
Effect of Fillets on Stress Concentrations in Cylindrical Shells with Step Changes in Outside Diameter [71-PVP-27] (*A*) ..... Ag 52
Experimental and Finite Element Stress Analysis of a Thin-Shelled Cylinder-to-Cylinder Model [71-PVP-36] (*A*) ..... Ag 53
Experimental Determinations of Plastic Collapse Loads for Pipe Elbows [71-PVP-37] (*A*) ... Ag 53
Greenwood, H. T.
Painting of Plastics [71-DE-36] (*A*) ..... Ag 46
Greenwood, R. W.
Utilities Planning for a New Industrial Chemical Complex [71-IPwr-7] (*A*) ..... S 54
Gregory, C.
Underground Tunnels (*C*) ..... N 62
Grettum, R. S.
Meeting Europe's Low Noise Requirements for Compressor Stations [71-GT-87] (*A*) ..... Jl 41
Grids
Fast Breeding Bee Hives (*PB*) ..... F 60
Griemsmann, John W. E.
Moving the Arctic Oil: Pipelines and the Pour Point ..... N 27
Griffin, Fred S. deceased ..... Je 80
Griffin, O. M.
Flow Near Self-Excited and Forced Vibrating Circular Cylinders [71-Vibr-25] (*A*) ..... N 50
The Unsteady Wake of an Oscillating Cylinder at Low Reynolds Number [71-APM-33] (*A*) .. O 59
Griffith, W. L.
Engineering a Better Environment
11: Underground Utility Tunnels [based on 70-WA/Ener-11] ..... S 27
The Potential Use of Utility Tunnels in Urban Areas [70-WA/Ener-11] (*A*) ..... Ap 62
Grinder Pump
See Marinas
Grinders and Grinding
The Dynamic Behavior of Surface Grinding
Part 1: A Mathematical Treatment of Surface Grinding [70-WA/Prod-9] (*A*) ... Mr 60
Part 2: Some Surface Grinding Tests [70-WA/Prod-10] (*A*) ..... Mr 60
Electrochemical Grinding of Cylindrical Test Specimens [71-Prod-11] (*A*) ..... Jl 49
Grinding Wheel Elasticity [70-WA/Prod-21] (*A*) Mr 62
Mammoth Grinder (*BTR*) ..... F 58
Miniature Grinder for Solid Specimens (*NTB*) Ag 37
Spherical Grinder (*OS*) ..... S 47
Studies on the New Vibratory Powdering Machine [71-Vibr-26] (*A*) ..... N 50
Under Her Wings (*PB*) ..... Mr 54
Wheels for Higher-Speed Grinding [based on 70 WA/Prod-27] ..... Ag 19
High Speed Grinding [70-WA/Prod-27] (*A*) Mr 62
Grogan, George C., Jr.
Ten Years' Progress in Management, 1960–1970
III: General and Operations Management
A Concept of a Plan [70-WA/Mgt-4] (*A*) Mr 58
Groetenhuis, P.
Structural Damping Using a Four Layer Sandwich [71-Vibr-20] (*A*) ..... N 49

Groover, M. P.
A Continuing Study in the Determination of Temperatures in Metal Cutting Using Remote Thermocouples [70-WA/Prod-23] (*A*) . . . . Mr 62
Grosh, Richard J. elected 14th president of Rensselaer Polytechnic Institute . . . . . O 89
Gross, J. H.
The Effective Utilization of Yield Strength [71-PVP-11] (*A*) . . . . . Ag 51
Gross Motion Classifications
Gross Motion Classifications of the RCCC Chain [70-Mech-56] (*A*) . . . . . Ja 51
Grossman, G.
Hydrodynamic Lubrication in Rolling of Thin Strips [71-Prod-2] (*A*) . . . . . Jl 48
Ground Transportation
Magnetic Levitation (*NB*) . . . . . Je 59
Grover, E. C.
Noise Abatement in Industry
Engine Combustion and Noise
Origins of Reciprocating Engine Noise—Its Characteristics, Prediction, and Control [70-WA/DGP-3] (*A*) . . . . . Ap 58
Grow, Harlow B.
The Gas Turbine (*C*) . . . . . S 59
Gruebler's Theory
The Missing Link: An Extension of Gruebler's Theory [70-Mech-70] (*A*) . . . . . Ja 52
Guernsey, Roscoe joins Exstran as director of engineering . . . . . Ap 85
Guggenheim (Daniel) Award
See Honors
Gumprich, W. C. deceased . . . . . Ag 87
Guns
Excised by Ice (*BTR*) . . . . . S 37
Light Gas Gun for Powder Compaction [based on 70-WA/PT-4] . . . . . Je 18
Laboratory-Size Light Gas Gun—Design and Operation [70-WA/PT-4] (*A*) . . . . . Mr 65
Gunter, E. J.
The Effect of Support Flexibility and Damping on the Synchronous Response of a Single-Mass Flexible Rotor [71-Vibr-72] (*A*) . . . . . N 54
Stability and Transient Motion of a Vertical Three-Lobe Bearing System [71-Vibr-76] (*A*) D 52
Gunther, C. E. deceased . . . . . N 93
Gupta, M. M.
Some Further Contributions to the Dynamic Sensitivity of the Parameter Perturbation Process [70-WA/Aut-5] (*A*) . . . . . F 69
Gupta, Viney K.
Mobility Analysis of Plane and Spatial Mechanisms [70-Mech-21] (*A*) . . . . . Ja 47
Gutmann, Fredrick T. joins staff of American National Standards Institute concentrating on safety and metrication . . . . . Je 77
ASME and Metric Conversion . . . . . Ap 38
Guy, James M. receives honorary membership in Asociacion Mexicana de Ingenieros Mechanicas y Electricistas (Mechanical and Electrical Engineering Society of Mexico) Ja 104; retires after 3 years as chairman of ASME Boiler and Pressure Vessel Committee S 98; Dual Presentation Marks J. M. Guy Retirement from ASME Boiler and Pressure Vessel Committee . . . . . D 77
Guzelsu, A. N.
An Experimental Study of Dispersion of Stress Waves in a Fiber-Reinforced Composite [71-APM-27] (*A*) . . . . . S 57
Gwaltney, Richard C.
Analytical Investigations of Compact Reinforcement for Radial Nozzles in Spherical Shells [71-PVP-26] (*A*) . . . . . Ag 52
Effect of Fillets on Stress Concentrations in Cylindrical Shells with Step Changes in Outside Diameter [71-PVP-27] (*A*) . . . . . Ag 52
Experimental and Finite Element Stress Analysis of a Thin-Shelled Cylinder-to-Cylinder Model [71-PVP-36] (*A*) . . . . . Ag 53
Gwinn, C. W.
Applications of Self-Organizing and Learning Control to Aeronautical and Industrial Systems [71-DE-22] (*A*) . . . . . Jl 46
Gyros
Investigation of the Spherical Hydrostatic Gas Bearing for Two-Axis Gyros [70-Lub-6] (*A*) Ja 42

H

Habach, George F. appointed vice-president, management division, Creative Logic Corp., Paramus, N. J., computer firm . . . . . S 97
Habberstad, J. L.
An Experimental and Numerical Study of Elastic Strain Waves on the Center Line of a 6061-T6 Aluminum Bar [71-APMW-22] (*A*) . . . . . N 57
Haberstroh, R. D.
The Dispersion of Matter in Turbulent Pipe Flows [70-WA/FE-14] (*A*) . . . . . F 73
Hafer, A. A.
For Gas Turbines: New Standard Rating Point O 34
Haft, E. E.
Stability of an Unsymmetrical Rotating Cantilever Shaft Carrying an Unsymmetrical Rotor [71-Vibr-58] (*A*) . . . . . N 53
Haigler, Edmund D.
Power-Plant Siting (*C*) . . . . . S 59
Haigler, W. B.
LMFBR Availability Considerations [71-NE-14] (*A*) . . . . . Jl 44
Hait, James M. elected Fellow ASME F 102; receives Fellow ASME certificate . . . . . Jl 76
Halcomb, S. P.
Design Considerations for Car Body Bolster Through Sill-Cushioned Underframe Freight Car [70-WA/RR-5] (*A*) . . . . . Je 42
Hale, L. A.
Surface Temperatures and Heat Fluxes Associated with the Evaporation of a Liquid Film on a Semi-Infinite Solid [71-HT-C] (*A*) . . . . . N 58
Hall, Carl W. receives Ohio State University Centennial Achievement Award . . . . . Ja 104
Hall, J. B., Jr.
Development of a Zero-Gravity Whole Body Shower [71-Av-2] (*A*) . . . . . O 54
Hall, Wilfred McGregor receives 1971 George Westinghouse Medal of ASME . . . . . D 74, 75
Hallett, W. M.
Design Considerations in Inertia Welding of Turbocharger and Gas Turbine Components [71-GT-21] (*A*) . . . . . Ag 45
Halstead, W. D.
The Role of Chloride in the Corrosion Caused by Flue Gases and Their Deposits [70-WA/CD-1] (*A*) . . . . . Ap 64
Ham, I.
Modification of Drill Point for Reducing Thrust [71-Prod-12] (*A*) . . . . . Jl 49
Hamann, F. H.
The Forces on a Cylinder Oscillating Sinusoidally in Water [71-Pet-2] (*A*) . . . . . D 47
Hamann, John R. elected vice-president by Detroit Edison Co. board of directors . . . Je 77
Hamid, Y. H.
Performance of Air-Cooled Radiatively Heated Screen Matrices [70-WA/Sol-1] (*A*) . . . . . F 64
Hamilton, J. F.
Cavity Resonance in Fractional Horsepower Refrigerant Compressors [71-Vibr-88] (*A*) . . N 54
Noise Study of Fractional Horsepower, Rotary Vane, Refrigerant Compressor [71-Vibr-89] (*A*) N 54
Hammarstrom, E. deceased . . . . . Ag 87
Hammer, A. N.
Exploitation of Cu-Rich Damping Alloys
Part 1—The Search for Alloys with High Damping at Low Stress [71-Vibr-106] (*A*) . . . . . D 54
Hamming, Kenneth W. elected Fellow ASME D 81
Hampton, Robert K. elected Fellow ASME Jl 76
Handicapped
Better Public Transportation for Aged (*NB*) . . D 67
Hannon, B. M.
An Isothermal Analogy for Thermal Stress in Shells [71-PVP-18] (*A*) . . . . . Ag 51
Hansen, Arthur Gene named eighth president of Purdue University . . . . . Jl 74
Hanson, H. F. deceased . . . . . N 93
Hansra, S. S.
ASME Employment Aids (*C*) . . . . . My 60
Harari, Azriel
Buckling of Vessels Composed of Combinations of Cylindrical and Spherical Shells [70-WA/APM-19] (*A*) . . . . . My 58
Hardening
See Precipitation Hardening
Harding, W. L. elected Vice-Chairman of ASME Boiler and Pressure Vessel Committee for a 3-year term . . . . . S 98
Harkee, J. F.
Oxygen Recovery for the 90-Day Space Station Simulator Test [71-Av-18] (*A*) . . . . . O 56
Harmon, H. A.
Performance of Compressor Blade Rows in a Sloping Flowpath [71-GT-13] (*A*) . . . . . Jl 36
Harmonics
Effect of Higher Harmonics on Performance of Vibratory Conveyors [71-Vibr-35] (*A*) . . . . . N 51
On Half Harmonics [70-WA/DE-16] (*A*) . . . . . F 67
Harmonic Response of Masses on an Elastic Half Space [71-Vibr-59] (*A*) . . . . . N 53
Kineto-Elastodynamic Harmonic Analysis of Four-Bar Path Generating Mechanisms [70-Mech-61] (*A*) . . . . . Ja 52
Multiple-Harmonic Cam Profiles [70-Mech-59] (*A*) Ja 51
Nonlinear Vibrations of a Beam Under Harmonic Excitation [70-WA/APM-13] (*A*) . . . . . My 58
Nonlinear Vibrations of a Buckled Beam Under Harmonic Excitation [70-WA/APM-48] (*A*) Je 48
Time-Harmonic Waves Traveling Obliquely in a Periodically Laminated Medium [70-WA/APM-47] (*A*) . . . . . Je 48
Harms, Carl F. deceased . . . . . Mr 88
Harper, E. Y.
The Scattering of Shock Waves by Cylindrical Cavities in Liquids and Solids [70-WA/APM-57] (*A*) . . . . . Je 49
Harper, John D. elected Fellow ASME F 102; receives Fellow ASME certificate Je 79; elected member of National Academy of Engineering . . . . . Je 77
Harper, William Z. named assistant manager of field and shop divisions and Ridge Construction Co. by Kodak Park Division, Eastman Kodak Co. . . . . Ja 105
Harris, A. B.
Evolution and Technology (*C*) . . . . . Ag 56
Harris, S. C.
Development of a Zero-Gravity Whole Body Shower [71-Av-2] (*A*) . . . . . O 54
Harris, T. A.
The Influence of EHD Lubrication on Rolling Bearing Selection and Design [71-DE-3] (*A*) Jl 44
Harrisberger, Lee chairman of sections for zone III on American Society for Engineering Education 1971–1972 board of directors . . N 89
Design of Spatial Four-Link Crank-Rocker Mechanisms With or Without a Passive Constraint [70-Mech-7] (*A*) . . . . . Ja 46
Harrison, C. G. deceased . . . . . O 91
Hart, H. P. deceased . . . . . Je 80
Hartblower, C. E.
Fracture of Structural Metals as Related to Pressure-Vessel Integrity and In-Service Monitoring [71-PVP-60] (*A*) . . . . . S 50
Hartenberg, Richard appointed a member of the ASME National History and Heritage Committee established late in 1970 to identify mechanical engineering attainments of the past . . . . . Ap 85
Hartman, W. F.
An Experiment on Laser-Generated Stress Waves in a Circular Elastic Ring [71-APMW-2] (*A*) N 55
Harvey, A. C.
Gas Flow Control Employing Temperature and Pressure Compensation [70-WA/Aut-14] (*A*) F 70
Haslam, G. H.
Fatigue of Cylinders Subjected to Pulsating Internal Pressure [71-PVP-15] (*A*) . . . . . Ag 51
Hatch, D. E.
A Family of Hodograph Models for the Crossflow Velocity Component of Three-Dimensional Turbulent Boundary Layers [71-FE-1] (*A*) Ag 54
Hatfield, J. E.
Hot Isostatic Processing [based on 70-PVP-2] F 33
Haug, E. J.
The Optimum Design of Spatial Frames Using the Method of Constrained Steepest Descent with State Equations [71-DE-H] (*A*) . . . . . Jl 48
Haushalter, J. Maxwell named a vice-president of Perkins & Will Corp. . . . . Ag 85
Haven, H. E., Jr.
Approximate Stress Analysis of Pressurized Bore Intersections in Rectangular Blocks [71-PVP-35] (*A*) . . . . . Ag 53
Havens, F. E.
Effect of Heat Treatment of the Properties of 3½ Percent Nickel Steel [71-Pet-29] (*A*) . . . D 50
Welding of Cryonic 5 Steel [71-Pet-33] (*A*) . . . D 50
Hawkins, George A. past-president serving on American Society for Engineering Education 1971–1972 board of directors . . . . . N 89
Hawkins, R. D. deceased . . . . . N 93
Hawthorne, J. R.
Analysis of Radiation-Induced Embrittlement Gradients on Fracture Characteristics of Thick-Walled Pressure Vessel Steels [71-PVP-7] (*A*) Ag 50
A Reassessment of Fracture-Safe Operating Criteria for Reactor Vessel Steels Based on Charpy-V Performance [70-WA/Met-1] (*A*) My 52
Haxton, R. S.
The Autoparametric Vibration Absorber [71-Vibr-49] (*A*) . . . . . N 52
Haydl, H. M.
Bending of Cylindrical Shells by Initial Parameter Method [70-WA/PVP-2] (*A*) . . . . . F 75
Hayes, J. K.
Experimental Stress Analysis of 24-in. Tees [71-PVP-28] (*A*) . . . . . Ag 52

Hayes, James L. to give Henry Robinson Towne Lecture at 1971 Winter Annual Meeting S 89
Haynes, Richard D.
Craniometric Measurements of Human Skulls [70-WA/BHF-8] (*A*) ..... Ap 63
Haynes, Russell R.
The Investigation of Bone's Substructure Using Megahertz Sound and a Porous Model [70-WA/BHF-11] (*A*) ..... Ap 63
Hays, E. M.
A New Generation of Bulk Materials-Handling Systems Meets the Growing Demands of the Power, Steel, and Transportation Industries—Innovations in Compatible High-Capacity Components Enable Development of Fully Integrated High-Capacity Systems [70-WA/MH-2] (*A*) ..... My 53
Hays, T. H.
Applied Industrial Shielding [71-PVP-55] (*A*) S 48
Haywood, K. H.
The Hydrogen Bubble Technique of Flow Visualization: Factors Affecting Bubble Size and Buoyancy [71-FE-36] (*A*) ..... S 53
Hazlett, Thomas H. relinquishes post as head of continuing education in engineering at University of California Extension, Berkeley, but retains dual posts as professor of mechanical engineering and acting dean of extension ..... N 89
Head
Head Injury Tolerance for Linear Impacts by Mechanical Impedance Methods [70-WA/BHF-4] (*A*) ..... Ap 63
Head, Thomas W. receives Purdue University Schools of Engineering "Distinguished Engineering Alumnus" award ..... Je 77; Jl 74
Heaney, James B.
Suitability of Metalized FEP Teflon as a Spacecraft Thermal Control Surface [71-Av-35] (*A*) O 58
Heat Exchange, Exchangers
Corrosion of Heat-Exchange Tubes in a Simulated Coal-Fired MHD System [70-WA/CD-3] (*A*) Ap 64
Enhanced-Surface Tubes (*BTR*) ..... Ag 38
Influence of Brazing on Very Compact Heat-Exchanger Surfaces [71-HT-29] (*A*) ..... O 63
Mathematical Model for Close Clearance Heat Exchangers [71-HT-32] (*A*) ..... O 63
Heat Pipes
See also Manned Space Station; Pipes
Development of Cryogenic Heat Pipes [70-WA/Ener-1] (*A*) ..... Ap 60
Performance Map of a Heat Pipe (*NTB*) ..... Je 31
Heat Pumps
See Pumps
Heat Recovery
Beneficial Uses of Waste Heat [70-WA/Ener-10] (*A*) ..... Ap 62
Engineering a Better Environment
9: Waste Heat Uses Cut Thermal Pollution [based on 70-WA/Ener-6] ..... Jl 15
Waste Heat Uses (*C*) (*AC*) ..... O 66
Uses of Waste Heat [70-WA/Ener-6] (*A*) Ap 61
Optimization of the Gas Turbine Exhaust Heat Recovery System [71-GT-79] (*A*) ..... Jl 41
Heat Resistance
Heat-Resistant Garments (*NTB*) ..... Jl 30
Heat Transfer
See also Absorption; Boiling; Boundary Layers; Conduction; Convection; Evaporation; Flow; Fluids; Heat Exchangers; Liquids; Momemtum; Radiation; Temperature Technology; Turbulence; Wicks
An Analysis of Combined Free and Forced Convection Heat Transfer from a Horizontal Circular Cylinder to a Transverse Flow [71-HT-O] (*A*) ..... N 59
An Analytical Investigation of Free Convection Heat Transfer to Supercritical Water [70-WA/HT-6] (*A*) ..... Ap 58
An Approximate Solution to the Shuttle Heat-Transfer Losses in a Reciprocating Machine [70-WA/Ener-3] (*A*) ..... Ap 60
Boiling-Curve Measurements from a Controlled Heat-Transfer Process [71-HT-J] (*A*) ..... N 59
Critical Rayleigh Numbers for Natural Convection of Water Confined in Square Cells with L/D from 0.5 to 8 [70-WA/HT-7] (*A*) ..... Ap 59
Cryogenic Blood Preservation [based on 70-WA/HT-20] ..... My 37
Preservation of Blood at Cryogenic Temperatures [70-WA/HT-20] (*A*) ..... Ap 60
Cryo-Immunology: The Antigenic Properties of the Male Rabbit Urogenital System as Studied by Selective Freezing of Its Components [70-WA/HT-19] (*A*) ..... Ap 60
Cryo-Immunology: Surgical Approach and Thermal Regimen for Freezing the Elements of the Male Rabbit Urogenital System [70-WA/HT-17] (*A*) Ap 59
Depth of Penetration During Electron Beam Welding [70-WA/HT-2] (*A*) ..... Ap 58
Design and Operation of Large-Scale Process Heat-Transfer Research Plants [70-WA/HT-21] (*A*) ..... Ap 60
Determination of the Radiation Properties of a Semi-Transparent Cylindrical Body Using the Monte Carlo Method [70-WA/HT-13] (*A*) Ap 59
Developing Cooling Tower Recirculation Factors from Field Test Data [70-WA/HT-22] (*A*) Ap 60
Development and Application of Mechanically Enhanced Heat-Transfer Surfaces [71-HT-40] (*A*) ..... N 58
The Effect of Curvature on Heat or Mass Transfer from an Isothermal Sphere [71-HT-7] (*A*) ..O 61
The Effect of Heat Transfer on the Flow of High Temperature Glass Through Small Nozzles [70-WA/HT-12] (*A*) ..... Ap 59
Effects of Crossflow on Impingement Heat Transfer [71-GT-1] (*A*) ..... Ag 44
Effects of Heat and Mass Transfer on Rayleigh-Taylor Instability [71-FE-7] (*A*) ..... Ag 54
An Experimental and Analytical Study of Radiative and Conductive Heat Transfer in Molten Glass [70-WA/HT-10] (*A*) ..... Ap 59
Experimental Explanation of Deterioration in Heat Transfer to Supercritical Carbon Dioxide [71-HT-24] (*A*) ..... O 62
Film Boiling Transition Temperature for Tissue Cooled with Liquid Nitrogen [70-WA/HT-16] (*A*) ..... Ap 60
Free Convection Through Vertical Plane Layers of Non-Newtonian Power Law Fluids [70-WA/HT-1] (*A*) ..... Ap 58
Gas Turbine Blade Heat Transfer Augmentation by Impingement of Air Jets Having Various Configurations [71-GT-9] (*A*) ..... Ag 44
Heat Transfer Characteristics in Air Fluidised Solids up to 900 F [70-WA/Temp-3] (*A*) My 54
Heat Transfer Due to Combined Free and Forced Convection in a Horizontal and Isothermal Tube [71-HT-3] (*A*) ..... O 61
Heat-Transfer Parameters and Transport Properties for Air and Jet Fuel-Air Mixtures [71-HT-41] (*A*) ..... N 58
Heat-Transfer Performance of Internally Finned Tubes [71-HT-31] (*A*) ..... O 63
Heat Transfer to Evaporating Liquid Films [71-HT-H] (*A*) ..... N 59
The Influence of Turbulence on Mass Transfer from Cylinders [70-WA/HT-3] (*A*) ..... Ap 58
Infrared Radiation of Thin Plastic Films [70-WA/HT-15] (*A*) ..... Ap 59
Infrared Radiation Properties of Sulfur Dioxide [70-WA/HT-4] (*A*) ..... Ap 58
Interaction of a Heated Jet with a Deflecting Stream [71-HT-2] (*A*) ..... O 60
Interface Enhancement for Vertical Tube Evaporators: A Novel Way of Substantially Augmenting Heat and Mass Transfer [71-HT-38] (*A*) ..N 57
Internal Laminar Heat Transfer with Gas-Property Variation [71-HT-N] (*A*) ..... N 59
Mass Flux and Enthalpy Distribution in a Rod Bundle for Single- and Two-Phase Flow Conditions [70-WA/HT-8] (*A*) ..... Ap 59
Mathematical and Experimental Modeling of the Circulation Patterns in Glass Melts [70-WA/HT-11] (*A*) ..... Ap 59
A Numerical Solution for Natural Convection in Cylindrical Annuli [70-WA/HT-9] (*A*) ... Ap 59
Performance Changes of a Sodium-Heated Steam Generator [71-HT-15] (*A*) ..... O 62
Performance Characteristics of Corrugated Tubes for Vertical Tube Evaporators [71-HT-30] (*A*) O 63
A Probe Technique for Determining the Thermal Conductivity of Tissue [70-WA/HT-18] (*A*) Ap 59
Some Results on the Heat Transfer Within Resonant Cavities at Subsonic and Supersonic Mach Numbers [71-FE-9] (*A*) ..... Ag 54
Spectral Emittance of Apollo 12 Lunar Fines [71-HT-21] (*A*) ..... O 62
Spectral Radiation from Alumina Powder on a Metallic Substrate [70-WA/HT-14] (*A*) . Ap 59
Study of the Onset of Premature Heat-Transfer Crisis During Hydrodynamic Instability in a Full-Scale Reactor Channel [71-HT-11] (*A*) O 61
Superheat Layer Thickness Measurements in Saturated and Subcooled Nucleate Boiling [71-HT-43] (*A*) ..... N 58
Turbulent Boundary Layer and Heat Transfer Measurements Along a Convergent-Divergent Nozzle [71-HT-4] (*A*) ..... O 61
The Two-Phase Critical Flow of One-Component Mixtures in Nozzles, Orifices, and Short Tubes [70-WA/HT-5] (*A*) ..... Ap 58
Volume Interchange Factors for Nonhomogeneous Gases [71-HT-19] (*A*) ..... O 62
Heat Transfer Conference Best Paper Award
See Honors
Heat Transfer Division Memorial Award
See Honors
Heat Transfer Research Inc. (HTRI)
Design and Operation of Large-Scale Process Heat-Transfer Research Plants [70-WA/HT-21] (*A*) ..... Ap 60
Heat Transport
LMFBR Fuel Shipping—Containment and Heat Transport [71-NE-6] (*A*) ..... Jl 42
Heat Treating
Big Vacuum Furnace (*PB*) ..... Je 36, 37
Effect of Heat Treatment of the Properties of 3½ Percent Nickel Steel [71-Pet-29] (*A*) ...D 50
Heaters, Heating
New Equipment Trends on Display at 20th International Air-Conditioning Exposition of ASHRAE, 1971 ..... Ap 71
Stress Analysis of High Temperature Pyrolysis Heater Coil Systems Subjected to Creep and Low Cycle Fatigue [71-Pet-17] (*A*) ..... D 49
Heath, W. C. deceased ..... Ag 87
Heavy Water
An Experimental Investigation of the Enthalpy of Saturated Heavy-Water Liquid [71-HT-M] (*A*) ..... N 59
Hecht, Irving A. promoted to position of general manager of Gasway Div., Chicago, Ill., of Wolverine-Pentronix, Inc. ..... S 98
Hecker, H. G. deceased ..... N 93
Hedrick, Charles L. appointed manager of operations for the Erie City Energy Div. of Zurn Industries, Inc. ..... My 88
Heginbotham, W. B.
An Analytical Model Predicting Fixed Index Assembly Machine Performance [71-Vibr-63] (*A*) N 53
Heinsohn, R. J.
Flames, Ions, and Electric Fields [70-WA/Fu-4] (*A*) ..... F 75
Heiser, F. A.
Anisotropy of Fatigue Crack Propagation [71-Met-G] (*A*) ..... Ag 48
Heitz, W. L.
Critical Rayleigh Numbers for Natural Convection of Water Confined in Square Cells with L/D from 0.5 to 8 [70-WA/HT-7] (*A*) ..... Ap 59
Helfinstine, R. A.
Potential Flow Past a Group of Circular Cylinders [71-FE-18] (*A*) ..... S 52
Wave Amplitude Study for Two-Phase Flow in a Horizontal Channel [71-FE-2] (*A*) ..... Ag 54
Helium
Combined Helium and Steam Cycle for Nuclear Power Plants [based on 70-WA/NE-3] Ag 14
Combined Cycle (*C*) (*D*) (*AC*) ..... N 61
A Combined Helium and Steam Cycle for Nuclear Power Generation [70-WA/NE-3] (*A*) My 55
Helixes
Basic Geometric Methods in Helical Lobe Compressor Design [70-WA/FE-23] (*A*) ..... F 74
Evaluation of Angle to be Subtended by the Spiral of Semispiral Casings [70-WA/FE-18] (*A*) F 74
Heller, S. R., Jr.
The Cost Effectiveness of Natural and Synthetic Fiber Ropes in the Marine Environment [70-WA/UnT-9] (*A*) ..... Je 46
Helmich, Melvin J. receives Diesel and Gas Engine Power Award at 1971 DGP Conference ..... Jl 66, 67
Helmick, Walter E. deceased ..... Ja 107
Hemenway, Henry H. elected group vice-president of newly formed Environmental Systems Group, Carborundum Co. ..... Jl 74
Hemeon, J. R. deceased ..... D 83
Hemodynamics
Hemodynamic Flow in Anisotropic, Viscoelastic Thick-Wall Vessels [70-WA/APM-59] (*A*) Je 49
Hemsworth, Martin C. elected Fellow ASME F 102
Hench, J. E.
Two-Dimensional Diffuser Performance with Subsonic, Two-Phase, Air-Water Flow [71-FE-20] (*A*) ..... S 51
Henderson, J. P.
The Effect of Stringer Width and Damping on the Response of Skin-Stringer Structures [71-Vibr-101] (*A*) ..... D 54
Hendricks, H. E.
In-Service Inspection of San Onofre Nuclear Generating Station—Unit 1 [71-PVP-51] (*A*) S 48
Hendricks, R. C.
Film Boiling Transition Temperature for Tissue Cooled with Liquid Nitrogen [70-WA/HT-16] (*A*) ..... Ap 60
Prediction of the Thermal Conductivity Anomaly of Simple Substances in the Critical Region [71-HT-28] (*A*) ..... O 63

Henriksen, Erik K. elected Fellow ASME My 89
Henry, R. E.
The Two-Phase Critical Flow of One-Component Mixtures in Nozzles, Orifices, and Short Tubes [70-WA/HT-5] (*A*) ..... Ap 58
Hering, R. G.
Transient Combined Conductive and Radiative Heat Transfer [71-HT-22] (*A*) ..... O 62
Hering, Richard F. named chief mechanical engineer of the American Electric Power Service Corp., N. Y. ..... O 90
Herrala, Thomas W.
Space Shuttle Environment Control and Life Support System [71-Av-16] (*A*) ..... O 56
Hersh, Alan S.
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Refinery Flair System Injectors Redesigned for Noise Control [70-WA/Pet-4] (*A*) Ap 55
Hertz, P. B.
Unconfined Elastomer Die Blanking [based on 71-Prod-6] ..... D 12
Unconfined Elastomer Die Blanking [71-Prod-6] (*A*) ..... Jl 49
Hertzberg, R. W.
Anisotropy of Fatigue Crack Propagation [71-Met-G] (*A*) ..... Ag 48
Herzog, W. G.
Tracer Tests for Nuclear Power Plant Steam Turbines [based on 69-WA/PTC-3] ..... Ja 15
Heskestad, G.
Two-Dimensional Miter-Bend Flow [70-WA/FE-1] (*A*) ..... F 71
Hess (Henry) Award
See Honors
Hester, J. Charles named head of Clemson University's Mechanical Engineering Department ..... Ap 85
Heter, E. D.
Factors Affecting Design and Reliability of High Performance Gears in Process Compressor Trains [71-Pet-30] (*A*) ..... D 50
Hetsroni, G.
Distribution of Mass, Velocity, and Intensity of Turbulence in a Two-Phase Turbulent Jet [70-WA/APM-45] (*A*) ..... Je 48
Heuschkel, J.
Analysis of Cracks in Welded Elbows [71-PVP-32] (*A*) ..... Ag 53
Heydt, G. T.
A Directed Random Search [70-WA/Aut-7] (*A*) F 69
Heyward, Theodore C. deceased ..... Ja 107
Hickman, K. E.
High Entrainment Ejector Design [71-FE-34] (*A*) S 52
Hierath, Leonard L. opens own office in Arvada, Colo., under the name Leonard L. Hierath/Engineering Consultants ..... Ag 85
Hietbrink, E. H.
Electric Storage Batteries for Vehicle Propulsion [70-WA/Ener-7] (*A*) ..... Ap 62
Higgins, E. M. deceased ..... N 93
High Speed Technology
See also Speed Technology; Velocity
Advanced Design Concepts for High Speed Bearings [71-DE-50] (*A*) ..... Ag 47
Highways
See Surfaces, Roads
Hikida, K.
The Adaptability of LWR Quality Assurance Standards to the LMFBR [71-NE-9] (*A*) ..... Jl 43
Hilgartner, G. H. deceased ..... S 99
Hill, John R. appointed manager of tubing operations, Babcock & Wilcox Tubular Products Division, Beaver Falls, Pa. ..... Ja 105
Hill, M. J.
Analytical and Experimental Studies of Two-Dimensional Flows in a Radial Bladed Impeller [71-GT-20] (*A*) ..... Jl 36
Hill, R. F.
Evaluation of Machinability and Machining Parameters of Cold Formed Steel Parts [71-DE-42] (*A*) ..... Ag 46
Hillier, M. J.
Dynamic Expansion of an Open-Ended Tube [71-Met-K] (*A*) ..... S 54
Yield Criteria and the Bauschinger Effect for a Plastic Solid [71-Met-P] (*A*) ..... S 55
Hilt, M. B.
Noise Abatement in Industry
Gas Turbine Noise Abatement
Formation and Measurements of Nitrogen Oxides in Gas Turbines [70-WA/GT-3] (*A*) Ap 56
Reduction of Nitrogen Oxides from Gas Turbines by Steam Injection [71-GT-58] (*A*) ..... Ag 46
Hindhede, U.
Cold-Machining—An Investigation of the Mechanics of Metal Cutting as Affected by the Workpiece Temperature in the Sub-Zero Range [70-WA/Prod-24] (*A*) ..... Mr 62
Hinges
Large Sideward Deflections of Two-Hinged Circular Arches [71-DE-E] (*A*) ..... Jl 48
Hironaka, M. C.
Site Surveying for Ocean Floor Structures [71-UnT-8] (*A*) ..... D 47
Hirotsu, T.
Statistical Analysis of Adhesion Performance of Locomotives [70-WA/RR-8] (*A*) ..... Je 42
History
National History and Heritage Committee established by ASME late in 1970 to identify mechanical engineering attainments of the past by designating landmarks, sites, machinery and other materials of historic interest, as well as such other tangibles suitable for the U. S. National Archives as drawings, old photographs, company records, and the recollections and reminiscences of engineers ..... Ap 85
Hitomi, K.
Optimization of Multistage Machining System: Analysis of Optimal Machining Conditions for the Flow-Type Machining System [70-WA/Prod-15] (*A*) ..... Mr 61
Ho, H. T.
Hydrodynamic Characteristics of a Cambered Hydrofoil with a Jet Flap [71-APMW-17] (*A*) N 56
Ho, Hwa-Shan
Limit Analysis for Combined Edge and Pressure Loading on a Cylindrical Shell [71-PVP-22] (*A*) Ag 52
Shakedown in Elastic-Plastic Systems Under Dynamic Loadings [71-APMW-27] (*A*) ..... N 56
Hobbs, G. K.
Methods of Modeling and Analyzing Viscoelastically Damped Structures [71-Vibr-36] (*A*) N 51
Hochheiser, R. M.
Noise Abatement in Industry
Gas Turbine Noise Abatement
Some Results of Fan/Compressor Noise Research [70-WA/GT-12] (*A*) ..... Ap 56
Hochmuth, R. M.
Uniaxial Stretching of the Red-Cell Membrane [70-WA/BHF-12] (*A*) ..... Ap 64
Hodge, Philip G., Jr. becomes technical editor of Journal of Applied Mechanics ..... Jl 72
Hodges, J. L.
Nitric-Oxide Generation in a Simulated Spark-Ignition Engine [70-WA/PID-3] (*A*) ..... Mr 63
Hodographs
A Family of Hodograph Models for the Crossflow Velocity Component of Three-Dimensional Turbulent Boundary Layers [71-FE-1] (*A*) Ag 54
The Hodograph Transformation in Plastic Waves with Discontinuous Loading Conditions [71-APMW-12] (*A*) ..... N 55
Hoekzema, R. J.
Synthesis of a Four-Bar Linkage Adjustable for Variable Radius of Curvature of a Coupler Curve [70-Mech-80] (*A*) ..... Ja 54
Hoffer, Arnold H. appointed president of Dyna-Truck Div., Dynamics Corp. of America Jl 74
Hoffman, H. W.
Performance Characteristics of Corrugated Tubes for Vertical Tube Evaporators [71-HT-30] (*A*) O 63
Hoffman, J. S.
Liquid Distributions of a Low Pressure Drop Injection System-Gas Turbine "Vaporizer" Design [71-GT-38] (*A*) ..... Ag 45
Hofmann, R.
The Dynamic Response of Blast Shields and Barricades to Impulsive Loadings [71-PVP-48] (*A*) ..... S 48
Hoge, K. G.
An Experimental and Numerical Study of Elastic Strain Waves on the Center Line of a 6061-T6 Aluminum Bar [71-APMW-22] (*A*) ..... N 57
Hoglund, Nils O. receives Cooper Union School of Engineering and Science Alumni Association's Gano Dunn Medal ..... My 88
Holberson, Henry A. named president of the Youngstown Metal Products Co. division of Youngstown Sheet and Tube Co. ..... My 88
Holcomb, W. N.
Design and Development of a Boron-Glass-Epoxy Lightweight Composite Gear Case [71-GT-85] (*A*) ..... Jl 41
Holding
Creep/Fatigue Interaction Correlation for 304 Stainless Steel Subjected to Strain-Controlled Cycling with Hold Times at Peak Strain [71-PVP-6] (*A*) ..... Ag 50
Holes
Stress Concentration in a Cylindrical Shell Containing a Circular Hole [71-PVP-9] (*A*) ..... Ag 50
Stresses in a Pressurized Ribbed Cylindrical Shell with a Reinforced Circular Hole Interrupting a Rib [71-PVP-8] (*A*) ..... Ag 51
Visual Detection of Holes in Thin Polymeric Films (*NTB*)
Holl, J. William corecipient of George Wallace Melville Medal at 1970 WAM ..... Ja 69, 70
Holland, J. W.
Thermionic Reactor Development [70-WA/Ener-13] (*A*) ..... Ap 62
Hollaseh, K.
Calibration of Constant-Temperature Hot-Wire Anemometers at Low Velocities in Water with Variable Fluid Temperature [71-HT-9] (*A*) O 61
Holliday, G. H.
Photoelasticity Applied to Analysis of Tubular Connections for Offshore Structures [71-Pet-27] (*A*) ..... D 50
Hollis, R. Frank elected Fellow ASME ..... F 104
Holloway, J. H.
Tracer Tests for Nuclear Power Plant Steam Turbines [based on 69-WA/PTC-3] ..... Ja 15
Holm, C. H. deceased ..... Ag 87
Holman, J. L. Monte receives Purdue University's Schools of Engineering "Distinguished Engineering Alumnus" award Je 77; Jl 74
Holmes, J. T. deceased ..... Ag 87
Holography
Acoustical Holography (*BTR*) ..... F 47
Application of Holographic Techniques to Turbine Disk Vibration [71-Vibr-105] (*A*) ..... D 54
Applications of Holography to Dynamics: High-Frequency Vibrations of Beams [70-WA/APM-5] (*A*) ..... My 57
Concealed Weapon Detector (*BTR*) ..... S 36
Holographic Analysis of Turbine Blades [71-GT-84] (*A*) ..... Jl 41
Holographic Characterization of Aerospace Components [71-GT-74] (*A*) ..... Jl 40
Holographic Detection of Microcracks [71-Met-C] (*A*) ..... Ag 48
The Laser in Aerospace (*BTR*) ..... My 43
Using Laser Holography for Nondestructive Testing ..... Mr 27
Holster, J. L.
Bellows Vibration with Internal Cryogenic Fluid Flows [71-Vibr-14] (*A*) ..... N 49
Holt, R. C.
Design for In-Service Inspection of Boiling Water Reactor Pressure Vessels [71-PVP-59] (*A*) ..... S 50
Holzer, S. N.
Response Bounds for Columns with Transient Loads [70-WA/APM-32] (*A*) ..... Je 47
Home Electric Pak
See Power Plants
Homer, C. E. deceased ..... Je 80
Honami, S.
Investigation Concerning the Fluid Flow in the Mixed-Flow Diffuser [71-GT-40] (*A*) ..... Jl 38
Honeycombs
Forming Fiberglass Honeycomb Elements (*NTB*) S 41
Honoref, E. P.
Analysis of Trace Contaminants [71-Av-17] (*A*) O 56
Honors
AIEE
Names Gordon B. Carson a Fellow ..... Jl 74
Presents award for Outstanding Achievement in Management to Willard F. Rockwell, Jr. Jl 74
AMIME
Confers honorary membership on James M. Guy Ja 104
ASEE
44th Lamme Gold Medal Award presented to Richard G. Folsom ..... O 89
G. Edwin Burks Award of $1000 presented to Edward F. Obert ..... D 80
ASME
ASME Medal
Awarded *in absentia* at 1970 WAM to Robert Rowe Gilruth ..... Ja 75
Presented to Gilruth ..... My 87
To be presented at 1971 Winter Annual Meeting to Horace Smart Beattie, Jr. S 89
Aviation and Space Division's Design Award of 1971 presented to Gerard W. Elverum ..... S 92
Certificate for initiative and leadership in development of new engineering merit badge for the Boy Scouts of America presented at 1970 WAM to Joseph P. Vidosic ..... Ja 75
Design Engineering Division's Machine Design Award presented at 1970 WAM to Reynold Benjamin Johnson ..... Ja 69, 70
Machine Design Award Nominations Sought D 75
DGP Meritorious Service Award presented (at 1971 DGP Conference) to John E. Onnen Jl 67
DGP Speaker Award presented (at 1971 DGP Conference) to Ralph S. Warner ..... Jl 67
Diesel and Gas Engine Power Award presented (at 1971 DGP Conference) to Melvin I. Helmich ..... Jl 67

Honors (*Continued*)
50 years of service recognition and ovation at 1970 WAM for Clarence E. Davies, Secretary Emeritus of ASME....Ja 72
Fluids Engineering Division's Lewis F. Moody Award of 1971 presented to Graham Wallis S 89
Gas Turbine Power Award presented, 1971, to Caryle Reid....Je 64, 65
Heat Transfer Division Memorial Award presented at 1970 WAM to Donald Q. Kern and Robert Siegel....Ja 71
Heat Transfer National Conference of 1969 Best Paper Award presented at 1970 WAM to G. C. Vliet and C. K. Liu....Ja 71
Honorary Membership
Conferred at 1970 WAM on Richard G. Folsom, Martin Goland, William Prager Ja 75
Folsom receives award....S 91
Goland receives award....My 88
Prager receives award....Ja 75
To be awarded at 1971 Winter Annual Meeting to Robert A. Bowman, Mylon E. Merchant, Nathan M. Newmark....S 89
Life Quality Engineering Citation for meritorious technological leadership and achievement presented to Luis A. Ferre....Je 77
Metropolitan Section of ASME presents leadership awards and fetes Bill Byrne....Jl 75
Plant Engineering and Maintenance Division presents Guerard Mackey Best Paper Award in 1971 [for paper presented at 1970 PEM Conference] to William S. Gatley....D 79
Prime Movers Committee Award (1971) presented to Paul Leung and Raymond E. Moore D 74, 75, 80
Regional Faculty Advisor of Year award presented to Charles J. Merz, Jr....Ja 105
ASTM
1971 Max Hecht award bestowed on J. Fred Wilkes....Ja 104
1971 Walter C. Voss Award presented to Everett C. Shuman....Ag 85
Best Papers Awards
Heat Transfer National Conference of 1969 Best Paper Award presented at 1970 WAM to G. C. Vliet and C. K. Liu....Ja 71
Plant Engineering and Maintenance Division presents Guerard Mackey Best Paper Award in 1971 [for paper presented at 1970 PEM Conference] to William S. Gately....D 79
Reliability and Maintainability 9th Conference (1970) Best Paper Award goes to K. W. Bills, Jr., and H. J. Wiegand....S 93
Cooper Union School of Engineering and Science Alumni Association awards Gano Dunn Medal to Nils O. Hoglund....My 88
Drexel University Evening College Alumni Association's 20-Year Award goes to (1971) Jesse LeCoff....Jl 74
East (Leo H.) Memorial Award presented by Rochester (N. Y.) Engineering Society to "Rochester Engineer of the Year" designee Phil T. Elliott....Ap 85
Eckman (Donald P.) Award Nominees Sought by American Automatic Control Council....My 74
Edison Medal, 1971, awarded by IEEE to John W. Simpson....Ap 85
Egleston (Thomas) Medal awarded by School of Engineering and Applied Science at Columbia University to Raymond D. Mindlin....S 97
Engineering Society of Detroit's highest membership honor "The Distinguished Member Service Award," of 1971 goes to Clement Freund....S 98
Gantt (Henry) Memorial Gold Medal Awarded to Frederick R. Kappel....Ap 80
Guggenheim (Daniel) Award of ASME, SAE, AIAA
Presented at 1970 WAM to Jakob Ackeret....Ja 75
1971 recipient to be Archibald Edward Russell S 94
Hess (Henry) Award presented at 1970 WAM to Thomas I. Geers....Ja 74, 75
Hoover Medal from ASCE, AIME, ASME, IEEE presented at 1970 WAM to John Erik Jonsson Ja 76
Kansas State University presents special recognition certificate to M. A. Durland, emeritus dean, College of Engineering....Jl 74
Lehigh University presents, to Ferdinand P. Beer, the R. R. and E. C. Hillman Award, which goes to the Lehigh faculty member who has done the most toward advancing the interests of the university....S 98
Main (Charles T.) Award
Presented at 1970 WAM to Steve H. Woodard Ja 74, 75
1971 recipient to be James M. Singleton S 34; (*ECA*)....N 83
Melville (George Wallace) Medal presented at 1970 WAM to J. William Holl and Alain L. Kornhauser....Ja 69, 70
Navy's Meritorious Civilian Service Award
Presented to Harold V. Nutt for distinguished service as special assistant for scientific affairs to Commander, U. S. Naval Forces, Vietnam F 101
Presented to Dance H. Kallas....Ag 85
Nichols (Percy) Award from AIME Coals Division and ASME Fuels Division presented at 1970 WAM to R. C. Corey....Ja 72
Offshore Technology Conference Distinguished Achievement Award for Individuals Presented (1971) to Julius A. Stratton....Je 55
Ohio State University's Centennial Achievement award recipients include Carl W. Hall....Ja 104
Oldenburger (Rufus) Medal presented at 1970 WAM to John R. Ragazzini....Ja 70
Outstanding Paper Awards:
Pressure Vessel Technology 1st International Conference (1969) to Thomas Slot....Jl 64
Pennsylvania State University Honors James L. Everett, III, as Distinguished Alumnus....Jl 74
Pi Tau Sigma
Pi Tau Sigma Gold Medal presented at 1970 WAM to Richard E. Barrett....Ja 74, 75
Call for Pi Tau Sigma Nominations....Mr 78
Plastics Science and Engineering annual International Award from Society of Plastics Engineers goes to Albert G. H. Dietz....Je 77
Purdue University
Harry Solberg Award for outstanding undergraduate teaching to Frederick B. Morse Jl 74
Schools of Engineering "Distinguished Engineering Alumnus" awards go to Thomas W. Head and J. L. Monte Holman....Je 77; Jl 74
Richards (Charles Russ) Memorial Award presented at 1970 WAM to Ralph G. Nevins Ja 74, 75
Society of Naval Architects and Marine Engineers Graduate Paper Award to Leonardo Peres y Peres....Ja 105
Graduate Paper Honor Prize to Joel D. Snyder, III....Ja 105
Linnard (Capt. Joseph H.) Prize to Frank M. Lewis....Ja 105
Sperry (Elmer A.) Medal from ASME, IEEE, SAE, SNAME, AIAA presented at 1970 WAM to Charles Stark Draper....Ja 76
Certificates of citation also presented at 1970 WAM to Delco Electronics Division of General Motors and Aero Products Division of Litton Systems....Ja 76
Taylor (J. Hall) Medal presented at 1970 WAM to Bernard F. Langer....Ja 69, 70
Timoshenko (Stephen P.) Medal presented at 1970 WAM to James Johnston Stoker....Ja 73
Trent-Crede Award presented by Acoustical Society of America to Raymond D. Mindlin D 80
University of Cincinnati Distinguished Engineering Alumnus Awards go to Robert M. Goldhoff and Warner L. Stewart....Je 78
University of Colorado
Distinguished Alumnus Achievement Award goes to Glenn Murphy....Jl 74
Engineering Development Council's Distinguished Engineering Alumnus Achievement Awards go to Glenn Murphy and Marcellus S. Merrill....Je 78
Warner (Worcester Reed) Medal presented at 1970 WAM to Wilhelm Flugge....Ja 69, 70
Watt (James) International Gold Medal awarded to Dr. Robert R. Gilruth by Institution of Mechanical Engineers of Great Britain (*NR*)..D 64
Westinghouse (George) Award
1970 recipient is Robert C. Spencer, Jr....S 91
1971 recipient to be Wilfred McGregor Hall D 74, 75
Williston (Arthur L.) Medal and Award
Presented at 1970 WAM to Steven H. Carlson Ja 74
Winner for 1971 is James A. Willms....Ag 32
World Trade Center Wins Award as "Outstanding Civil Engineering Achievement for 1971" (*NB*) Je 59
Hooper, A. T.
The Stress Analysis of Plates with Single and Clustered Nozzles by the Boundary Point Least Squares Method [71-PVP-20] (*A*)....Ag 52
Hoover, R. M.
Noise Abatement in Industry
Gas Turbine Noise Abatement
The Sound of Gas-Turbine Installations [70-WA/GT-6] (*A*)....Ap 56
Hoover Medal
See Honors
Hopkins, Bryant L., Jr.
The Job Problem (*C*)....Ja 55
Hopson, George D.
Skylab Environmental Control and Life Support Systems [71-Av-14] (*A*)....O 56
Horger, O. J.
Factors Affecting Axle Stresses [70-WA/RR-1] (*A*)....Je 42
Horlock, J. H.
On Entropy Production in Adiabatic Flow in Turbomachines [71-FE-3] (*A*)....Ag 54
Hormell, Duane C. deceased....Ja 107
Hornbuckle, J. D.
In-Service Inspection of San Onofre Nuclear Generating Station—Unit 1 [71-PVP-51] (*A*) S 48
Hornschuch, Hanns receives Outstanding Leadership Award from Metropolitan Section of ASME....Jl 75
Hornung, K. G.
Rolamite—A Tool in Hysteresis Measurement [71-Vibr-27] (*A*)....N 50
Horovitz, M. S.
Automatic Checkout of Complex Modules [71-Vibr-115] (*A*)....D 55
Hottel, H. C.
Mathematical and Experimental Modeling of the Circulation Patterns in Glass Melts [70-WA/HT-11] (*A*)....Ap 59
Houghton, Arthur V. named director, Bureau of Engineering Research, University of New Mexico, College of Engineering My 88; named director of university's Eric H. Wang Civil Engineering Research Facility....Ag 85
Howard, J. H. G.
Measured and Predicted Flow Near the Exit of a Radial-Flow Impeller [71-GT-15] (*A*)....Ag 44
Howard, T. W. deceased....N 93
Howell, R. H.
Drag Force Measurements of a Compressible Turbulent Boundary Layer on an Adiabatic Smooth Flat Plate [70-WA/FE-26] (*A*)....F 74
Howes, P. S.
The Static and Dynamic Behavior of Warren Type Machine Tool Structural Elements [70-WA/Prod-7] (*A*)....Mr 60
Hoyt, Harlan K. elected Fellow ASME....D 81
Hoyt, J. W.
New ASME Freeman Scholars Selected; Reviews to Be Presented at WAM....Je 56
Hrubecky, H. F.
Dynamic Behavior of a Switching Jet in a Model Bistable Fluidic Device [70-WA/Flcs-20] (*A*) Je 44
Hryniewicz, H. W. deceased....N 93
Hsia, E. S.
Entrance Development of the Weakly Interacted MHD Plane Channel Flow as Affected by Wall Conductances [71-APM-A] (*A*)....O 59
Hsia, H. Tao-Sse
A Criterion for the Combustion Modes in Constant Area Combustors [70-WA/Av-4] (*A*)....F 68
Hsieh, D. Y.
Effects of Heat and Mass Transfer on Rayleigh-Taylor Instability [71-FE-7] (*A*)....Ag 54
Hsing, F. C.
The Effect of Fluid Inertia on a Porous Thrust Plate—An Analytical Solution [70-Lub-18] (*A*) Ja 44
A Qualitative Study of Gas Bearings Operating at High Subsonic and Supersonic Tangential Speeds [71-APM-U] (*A*)....O 59
Hsu, C. C.
On Flow Past a Supercavitating Cascade of Cambered Blades [71-FE-6] (*A*)....Ag 54
Hsu, Chen-Chi
Falkner-Skan Flows of Power-Law Fluids [71-FE-35] (*A*)....S 52
Hsu, H.-L. deceased....O 91
Hsu, K. H.
Indentation of a Circular Membrane [70-WA/APM-33] (*A*)....Je 47
Hsu, T. C.
Strain Histories and Strain Distributions in a Cup Drawing Operation [70-WA/Prod-6] (*A*) Mr 59
HTRI
See Heat Transfer Research Inc.
Hu, Kuo-Kuang
On the Nonlinear Vibrations of Free-Free Beams [70-WA/APM-55] (*A*)....Je 49
Huang, C. C.
Free Vibrations of Viscoelastic Timoshenko Beams [70-WA/APM-44] (*A*)....Je 48
Huang, H.
Transient Interaction of Spherical Acoustic Waves and a Spherical Elastic Shell [70-WA/APM-29] (*A*)....Je 46
Huang, Matthew
Synthesis of Four-Link Space Mechanisms via Extension of Point-Position-Reduction Technique [70-Mech-17] (*A*)....Ja 47
Huang, T. C.
Coupled Response of Spatial Vibratory Structures Mounted to Isotropic Plate Elements [71-Vibr-3] (*A*)....N 48
Free Vibrations of Viscoelastic Timoshenko Beams [70-WA/APM-44] (*A*)....Je 48

Hubbard, A. M.
Design for In-Service Inspection of Boiling Water Reactor Pressure Vessels [71-PVP-59] (*A*)..S 50
Hubbard, R. P.
Flexure of Layered Cranial Bone [70-WA/BHF-5] (*A*).....Ap 63
Huber, E. J.
Safety Considerations in the Selections of Switches and Relays [71-DE-33] (*A*).....Jl 47
Hudachek, R. J.
The Story of a Synthesis Gas Compressor Failure [71-Pet-31] (*A*).....D 50
Huddleston, J. V.
Behavior of a Steep Prestressed Arch Made from a Buckled Strut [70-WA/APM-15] (*A*).....My 58
Hudson, Donald E. elected Fellow ASME Jl 76
Hudson, Kenneth (*author*)
"A Guide to the Industrial Archaeology of Europe" (*BR*).....N 62
Hudson, T. W.
A Seal User Looks at Improving Dynamic Seal Applications [71-DE-9] (*A*).....Jl 45
Huey, John S. deceased.....Ap 88
Hulbert, L. E.
The Stress Analysis of Plates with Single and Clustered Nozzles by the Boundary Point Least Squares Method [71-PVP-20] (*A*).....Ag 52
Hull, F. C.
The Effect of Composite on the Stress-Rupture Properties of Fully Austenitic Stainless Steel Welds [71-PVP-64] (*A*).....S 50
Hulls
Kumukahi [based on 70-WA/UnT-11].....Ag 9
Kumukahi [70-WA/UnT-11] (*A*).....Je 46
Human Factors
See also Bioengineering; Biomechanics; Manned Space Station
Analysis and Physiological Monitoring of the Human Left Ventricle [70-WA/BHF-14] (*A*) Ap 63
Biomedical Materials Compatibility and the Design Challenge [71-DE-8] (*A*).....Jl 45
Blood Pressure via the Ear (*BTR*).....N 37
The Computer and the Chromosome (*BTR*) Mr 45
A Concept for Generating Plant Control Rooms Utilizing Human Engineering System Design Criteria [71-Pwr-2] (*A*).....D 51
Coordinated Motion Control of Prosthetic Arms and Remote Manipulators [70-Mech-75] (*A*) Ja 53
Counterattack on Methemoglobinemia (*BTR*) Mr 51
Craniometric Measurements of Human Skulls [70-WA/BHF-8] (*A*).....Ap 63
The Dynamic Characteristics of the Human Intervertebral Joint [70-WA/BHF-6] (*A*) Ap 63
Elastic Analysis of Condylar Structures [70-WA/BHR-1] (*A*).....Ap 62
Evaluation of Cardiac Work by Means of the Thermodilution Technique Employing the Thermocatheter [70-WA/Temp-2] (*A*)...My 54
Excised by Ice (*BTR*).....S 37
Fetal Monitor (*BTR*).....Jl 26
Flexure of Layered Cranial Bone [70-WA/BHF-5] (*A*).....Ap 63
Fluidic Temperature Control for Liquid-Cooled Space Suits [70-WA/Flcs-19] (*A*).....Je 44
Gene Fusion (*BTR*).....Jl 27
Hard Tissue as a Composite Material
Part 1: Bounds on the Elastic Behavior [70-WA/BHF-3] (*A*).....Ap 62
Head Injury Tolerance for Linear Impacts by Mechanical Impedance Methods [70-WA/BHF-4] (*A*).....Ap 63
Hemodynamic Flow in Anisotropic, Viscoelastic Thick-Wall Vessels [70-WA/APM-59] (*A*) Je 49
High Diver Impacts on GM (*BTR*).....Ap 43
Hydraulically Actuated Quadraplegic Arm Appliance with Six Degrees of Freedom [70-Mech-55] (*A*).....Ja 51
The Investigation of Bone's Substructure Using Megahertz Sound and a Porous Model [70-WA/BHF-11] (*A*).....Ap 63
Large Deformation Analysis of the Arterial Cross Section [70-WA/BHF-15] (*A*).....Ap 63
Measurement of Sequential Velocity Development in the Aorta [70-WA/BHF-13] (*A*).....Ap 63
Mechanical Properties and Histological Structure of Human Cortical Bone [70-WA/BHF-7] (*A*) Ap 63
A Porous Black Model for Cancellous Bones [70-WA/BHF-2] (*A*).....Ap 62
Propagation of Longitudinal Waves in Circularly Cylindrical Bone Elements [71-APM-5] (*A*) S 55
Relationship Among Frequency, Amplitude, Damping and Human Awareness for Floor Vibration Due to Impact [71-Vibr-44] (*A*)..N 51
Remote Heart Monitor (*BTR*).....Jl 29
Self-Sealing Closure (*NTB*).....O 44
A Single Joystick Hydraulic Control System with Six Independent Simultaneous Velocity Proportional Degrees of Freedom [70-Mech-54] (*A*) Ja 51
The Sky Above the Noise Below (*EN*).....Je 60
Students' Machine Aids Cerebral Palsy Victims (*EN*).....O 74
A Synopsis of the Use of Fluerics in Medicine [70-WA/Flcs-16] (*A*).....Je 44
"Talking" Muscles (*BTR*).....F 52
Tensile Properties of Bone at High Strain Rates [70-WA/BHF-10] (*A*).....Ap 64
Uniaxial Stretching of the Red-Cell Membrane [70-WA/BHF-12] (*A*).....Ap 64
"Voiceprint" Identification (*BTR*).....Ja 31
A "Walk Around" the Beating Heart (*BTR*) Jl 28
Humidity
Thermal Effects in Precision Machining [based on 70-WA/Prod-25].....Jl 11
Thermal Effects in Precision Machining [70-WA/Prod-25] (*A*).....Mr 62
Hunting
The Hunting Behavior of Conventional Railway Trucks [70-WA/RR-2] (*A*).....Je 42
Huse, H.
Thermodynamic Characteristics of Staged Mechanical Vacuum Pumps on Condenser Service [70-WA/PID-10] (*A*).....Mr 64
Huseyin, K.
The Loading Frequency Relationship in Multiple Eigenvalue Problems [71-APM-13] (*A*).....S 56
Hussain, M. A.
Thermal Stresses Near a Prolate Spheroidal Inclusion [70-WA/APM-16] (*A*).....My 58
Huston, Ronald L. appointed director of Institute of Space Sciences at University of Cincinnati.....S 97
Hwang, C. J.
Experiments on the Onset of Longitudinal Vortices in Laminar Forced Convection Between Horizontal Plates [71-HT-1] (*A*).....O 60
Hwang, J. Y.
Hydro-Rotational Stability of a Slender Plate in a Rectangular Flow Channel [71-Vibr-37] (*A*) N 51
Hydraulics
Bidirectional Flow Meter (*NTB*).....D 38
On Half Harmonics [70-WA/DE-16] (*A*).....F 67
Hydraulic Brake Safety Valve (*NTB*).....Ja 35
Hydraulically Actuated Quadraplegic Arm Appliance with Six Degrees of Freedom [70-Mech-55] (*A*).....Ja 51
Hydraulically Damped Motion of Gondola Cars [70-WA/RR-4] (*A*).....Je 42
Iron Mascot (*BTR*).....D 37
A Single Joystick Hydraulic Control System with Six Independent Simultaneous Velocity Proportional Degrees of Freedom [70-Mech-54] (*A*) Ja 51
Small Hydraulic Turbine Drives (*NTB*).....F 51
Some Sound Research (*BTR*).....Ag 34
Hydrean, P. P.
Elevated Temperature Properties of Maraging Steel Plates and Welds [71-Met-E] (*A*)...Ag 48
Hydrocarbons
Noise Abatement in Industry
Engine Combustion and Noise
The Influence of Turbulence and Compounding on Unburned Hydrocarbons and Nitric Oxide in the Combustion Products from Internal Combustion Engines [70-WA/DGP-2] (*A*).....Ap 57
Hydrodynamics
A Comparison of the Frictional Losses in Hydrostatic and Conventional Extrusion Processes with Hydrodynamic Lubrication [70-Lub-26] (*A*).....Ja 45
Experimental Hydrodynamics of the Accelerated Turbulent Boundary Layer With and Without Mass Injection [71-HT-F] (*A*).....N 58
Forces on Submarine Pipelines from Steady Currents [71-UnT-3] (*A*).....D 46
Hydrodynamic Characteristics of a Cambered Hydrofoil with a Jet Flap [71-APMW-17] (*A*) N 56
Hydrodynamic Lubrication in Rolling of Thin Strips [71-Prod-2] (*A*).....Jl 48
The Hydrodynamic Lubrication of Rough Bearing Surfaces of Finite Width [70-Lub-7] (*A*)..Ja 42
Sectionalized Compressible and Momentum Integral Models for Channel Hydrodynamics [71-HT-14] (*A*).....O 61
Study of the Onset of Premature Heat-Transfer Crisis During Hydrodynamic Instability in a Full-Scale Reactor Channel [71-HT-11] (*A*) O 61
Hydroelasticity
The Influence of a Free Surface on the Hydroelastic Stability of a Flat Panel [71-APM-16] (*A*).....S 56
Hydroelectrics
Operation Flowdown (*BTR*).....My 45
Hydrofoils
Hydrodynamic Characteristics of a Cambered Hydrofoil with a Jet Flap [71-APMW-17] (*A*) N 56
Linearized Potential Flow Models for Hydrofoils in Supercavitating Flows [71-FE-12] (*A*)..Ag 55
Theory for the Determination of F'utter Speed of a Class of Hydrofoils [71-Vibr-19] (*A*).....N 49
Hydrogen
The Hydrogen Bubble Technique of Flow Visualization: Factors Affecting Bubble Size and Buoyancy [71-FE-36] (*A*).....S 53
Hydrogen-Fueled IC Engine (*BTR*).....N 40
Radial Flow Measurements of Hydrogen Near Its Critical Point in a Heated Cylindrical Tube [71-HT-25] (*A*).....O 62
Hydrogen (Deuterium, Tritium)
Power in the Year 2001
Part 4—Rock Burning.....D 27
Sea Burning.....D 30
Hydrogen Sulfide
Resistance of Some Standard Compressor Materials to Hydrogen Sulfide Stress-Corrosion Cracking [71-Pet-25] (*A*).....D 50
Hydrostatics
A Comparison of the Frictional Losses in Hydrostatic and Conventional Extrusion Processes with Hydrodynamic Lubrication [70-Lub-26] (*A*).....Ja 45
The Effects of Temperature and Inertia on Hydrostatic Thrust Bearing Performance [70-Lub-10] (*A*).....Ja 43
The Influence of Wall Conductance on Performance of the MHD Hydrostatic Thrust Bearing [70-Lub-1] (*A*).....Ja 42
Investigation of the Spherical Hydrostatic Gas Bearing for Two-Axis Gyros [70-Lub-6] (*A*) Ja 42
HYGAS
Converting Coal to Gas (*NB*).....Mr 73
Hyman, B.
Stress Analysis of Thin Elasto-Plastic Shells [70-WA/PVP-3] (*A*).....F 76
Hyperbola
Stress Concentration Around a Hyperboloidal Notch Under Tension in a Transversely Isotropic Material [70-WA/APM-24] (*A*)...My 59
Three-Dimensional Analysis of Hypoid Gears [71-DE-D] (*A*).....Jl 48
Hysteresis
Rolamite—A Tool in Hysteresis Measurement [71-Vibr-27] (*A*).....N 50
Slow-Speed Drives for Miniature Devices (*NTB*) Ja 34
Hytrac Tough Guy
See Conveyors

I

Iberall, Arthur S. receives Fellow ASME certificate.....My 89
Ice
Excised by Ice (*BTR*).....S 37
High-Speed Ice Train [based on 70-WA/RR-3] Je 14
High-Speed Ice Train (*C*).....Ag 57
Coefficient of Friction of Ice at High Speed—Application to a High Speed Train [70-WA/RR-3] (*A*).....Je 42
Ice Age
Does Man's Release of Energy Contribute to the Melting of the Polar Ice Caps or Does It Move the Earth Toward Another Ice Age? [70-WA/APC-1] (*A*).....F 68
Identification Methods and Devices
Container Control System (*NB*).....O 73
Laser Detects Air Pollution (*BTR*).....N 37
"Voiceprint" Identification (*BTR*).....Ja 31
IEC
See International Electrotechnical Commission
Ignition
See also Starting Systems
Leadless Gas a Fire Hazard? (*BTR*).....O 43
Ilha Solteira (Brazil)
165,500-kw Francis Turbine (*OS*).....Ja 41
Ilha Solteira (*C*).....Jl 52
Power for Brazil (*OS*).....Je 39
Illian, Jose J.
Employment Practices (*C*).....O 64
Illinois Institute of Technology Alumni Association presents Professional Achievement Award to George Kinsman.....Ag 85
Illustrations
See also Data Systems
Xerox 840
Speeds Flow of Engineering Data (*BTR*)..Ja 36
Images, Imaging
See also Mirrors
Advanced Image Handling (*BTR*).....Jl 29
Concealed Weapon Detector (*BTR*).....S 36
Imaginative Imaging (*BTR*).....Ag 35
Imai, K.
Lift Jet Engine, JR100 [71-GT-75] (*A*).....Jl 41

Immersion
The Channel Flow of a Density-Stratified Fluid About Immersed Bodies [71-FE-23] (*A*)....S 52
The Effect of Liquids on the Dynamic Motions of Immersed Solids [71-Vibr-100] (*A*).....D 53
Immigration
Engineer Immigration Halted (*NB*).....Ap 72
Immunology
Cryo-Immunology: The Antigenic Properties of the Male Rabbit Urogenital System as Studied by Selective Freezing of Its Components [70-WA/HT-19] (*A*).....Ap 60
Cryo-Immunology: Surgical Approach and Thermal Regimen for Freezing the Elements of the Male Rabbit Urogenital System [70-WA/HT-17] (*A*).....Ap 59
IMP
See Integrated Mechanisms Program
Impact
Automobile Bumper Testing with the Liberty Mutual Crash Simulator [71-Vibr-107] (*A*)..D 54
A Generalized Static Model for Fluidic Impact Modulators [70-WA/Flcs-2] (*A*).....Je 43
Head Injury Tolerance for Linear Impacts by Mechanical Impedance Methods [70-WA/BHF-4] (*A*).....Ap 63
High Diver Impacts on GM (*BTR*).....Ap 43
Light Gas Gun for Powder Compaction [based on 70-WA/PT-4].....Je 18
Laboratory-Size Light Gas Gun—Design and Operation [70-WA/PT-4] (*A*).....Mr 65
Metal Erosion through Water Impact (*NTB*) N 38
Normal Impact of an Infinite Elastic Beam by a Semi-Infinite Elastic Rod [70-WA/APM-54] (*A*) Je 48
Radial Stress Release Phenomena in Plate Impact Experiments: Compression—Release [71-APMW-16] (*A*).....N 56
Relationship Among Frequency, Amplitude, Damping and Human Awareness for Floor Vibration Due to Impact [71-Vibr-44] (*A*)..N 51
Transient Deformation of Slender Rods Impacting Rigid Plates [71-Vibr-93] (*A*).....D 53
Impedance
Head Injury Tolerance for Linear Impacts by Mechanical Impedance Methods [70-WA/BHF-4] (*A*).....Ap 63
Measurement of the Characteristic Impedance of Fluidic Lines [70-WA/Flcs-14] (*A*).....Je 44
Impellers
An Analysis of Flow Through a Mixed Flow Impeller [71-GT-2] (*A*).....Ag 44
Analytical and Experimental Studies of Two-Dimensional Flows in a Radial Bladed Impeller [71-GT-20] (*A*).....Jl 36
A Blade Theory of an Impeller with an Arbitrary Surface of Revolution [71-GT-17] (*A*).....Jl 36
Measured and Predicted Flow Near the Exit of a Radial-Flow Impeller [71-GT-15] (*A*).....Ag 44
A Study on the Flow Pattern Within the Centrifugal and Mixed-Flow Impellers [71-GT-41] (*A*).....Jl 38
Imperfections
Asymptotic Formulas for the Buckling Stresses of Axially Compressed Cylinders with Localised or Random Axisymmetric Imperfections [71-APM-29] (*A*).....S 57
Impingement
Effects of Crossflow on Impingement Heat Transfer [71-GT-1] (*A*).....Ag 44
Gas Turbine Blade Heat Transfer Augmentation by Impingement of Air Jets Having Various Configurations [71-GT-9] (*A*).....Ag 44
Impulses
The Dynamic Response of Blast Shields and Barricades to Impulsive Loadings [71-PVP-48] (*A*).....S 48
Incinerators
Fireside Metal Wastage in Municipal Incinerators [70-WA/Inc-2] (*A*).....F 67
MECAR Tackles Problems of Incineration and Clean Air at Symposium, 1971
For Survival: Are Gas Masks Essential?..Jl 70
Optimum Burning (*BTR*).....F 48
Regional Air Quality Control—The Impact and Costs of Refuse Incineration [70-WA/Inc-1] (*A*) F 67
Inclusions
Thermal Stresses Near a Prolate Spheroidal Inclusion [70-WA/APM-16] (*A*).....My 58
Incompressibility
Incompressible Laminar Boundary Layers on a Parabola at Angle of Attack: A Study of the Separation Point [71-APM-31] (*A*).....O 58
Plane Deformations of Incompressible Fiber-Reinforced Materials [71-APM-V] (*A*).....O 60
Indentation
Bounds on the Maximum Contact Stress of an Indented Elastic Layer [71-APM-E] (*A*)...O 60
Indentation of a Circular Membrane [70-WA/APM-33] (*A*).....Je 47
Indentation of an Elastic Layer by an Array of Punches Moving with Steady Velocity [70-WA/APM-30] (*A*).....Je 47
Indexing
Optimal Torque Balance for a Complex Stamping Stamping and Indexing Machine [70-Mech-82] (*A*).....Ja 54
Industrial Power
See also Power
Combustion Safety in Industrial Boilers [71-IPWr-3] (*A*).....S 53
Decision to Convert or Replace the Boiler [71-IPwr-1] (*A*).....S 53
Maintenance of Power Equipment [71-IPwr-4] (*A*) S 53
The Many Roles of a Consulting Engineer [71-IPwr-6] (*A*).....S 54
Performance Testing of Industrial Power Equipment [71-IPwr-8] (*A*).....S 54
Preparing Low Sulfur Residual Fuel Oils: What It Does to the Oil; What It Means to the Consumer [71-IPwr-9] (*A*).....S 54
Selection and Training of Power Engineers [71-IPwr-2] (*A*).....S 53
Two Years Experience in Handling and Burning No. 6 Low Sulfur Fuel Oil [71-IPwr-5] (*A*) S 53
Utilities Planning for a New Industrial Chemical Complex [71-IPwr-7] (*A*).....S 54
Industry
Applications of Self-Organizing and Learning Control to Aeronautical and Industrial Systems [71-DE-22] (*A*).....Jl 46
Applied Industrial Shielding [71-PVP-55] (*A*) S 48
Engineering a Better Environment
6: Industrial Noise Control–Past, Present, and Future [based on 70-PEM-29].....Ap 29
7: The Environment-Energy Balance: Needed Actions.....My 33
Environment-Energy Balance (*C*) Jl 51; Ag 56
The Engineer's Knowledge: Is It Transferable from One Industry to Another? [based on 71-DE-28].....O 26
Shifting from One Industry to Another; How Transferable Is the Engineer's Knowledge? [71-DE-28] (*A*).....Jl 47
The Environment and Employment (*Ed*).....F 11
"A Guide to the Industrial Archaeology of Europe" (*BR*).....N 62
Industrial Design: Its Role in Cost Reduction [based on 71-DE-25].....D 23
The Role of Industrial Design in Cost Reduction [71-DE-25] (*A*).....Jl 46
Industrial Output (*NB*).....My 76
Industrial Pollution Control Handbook (*CB*) Ag 57
New Industrial Burner (*BTR*).....Je 32
New Steelworks in Operation (*OS*).....S 46
Noise Abatement in Industry
Engine Combustion and Noise
The Influence of Turbulence and Compounding on Unburned Hydrocarbons and Nitric Oxide in the Combustion Products from Internal Combustion Engines [70-WA/DGP-2] (*A*).....Ap 57
Mechanical Aspects of Gear-Induced Noise in Complete Power Train Systems [70-WA/DGP-1] (*A*).....Ap 57
Origins of Reciprocating Engine Noise—Its Characteristics, Prediction, and Control [70-WA/DGP-3] (*A*).....Ap 58
Gas Turbine Noise Abatement
Formation and Measurements of Nitrogen Oxides in Gas Turbines [70-WA/GT-3] (*A*) Ap 56
Future Trends in Aircraft Engine Noise Research [70-WA/GT-13] (*A*).....Ap 57
Noise Considerations in High Bypass Ratio Fan Engine Design [70-WA/GT-14] (*A*) Ap 57
On the Noise from Jet Diffusers [70-WA/GT-5] (*A*).....Ap 56
Some Results of Fan/Compressor Noise Research [70-WA/GT-12] (*A*).....Ap 56
Some Results of Recent Research on Fan and Jet Noise [70-WA/GT-15] (*A*).....Ap 57
The Sound of Gas-Turbine Installations [70-WA/GT-6] (*A*).....Ap 56
Utility Applications for Advanced Gas Turbines to Eliminate Thermal Pollution [70-WA/GT-9] (*A*).....Ap 56
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Application of a Disorder Measure to Acoustical and Structural Models [70-WA/DE-1] (*A*).....F 65, Ap 55
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Multiple Excitations of Structures and Enclosures [70-WA/DE-8] (*A*)....F 66, Ap 55
Response and Internal Noise of a Fuselage to Random Excitation [70-WA/DE-9] (*A*) F 66, Ap 55
Response of Structures to Nonhomogeneous Random Pressure Fields [70-WA/DE-11] (*A*).....F 66, Ap 56
Sound and Vibration Transmission Through Panels and Tie Beams Using Statistical Energy Analysis [70-WA/DE-2] (*A*) F 65, Ap 55
Sound Transmission Through an Elastic Enclosure Acoustically Closely Coupled to a Noise Source [70-WA/DE-12] (*A*) F 67, Ap 56
Underwater Behavior of Free-Flooded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
Vibration Response and Wave Propagation in Periodic Structures [70-WA/DE-3] (*A*) F 65, Ap 55
Noise Abatement and Its Control in the Petroleum Industries
Design and Performance of High-Pressure Blowoff Silencers [70-WA/Pet-1] (*A*) Ap 54
Energy Transmission in Piping Systems and Its Relation to Noise Control [70-WA/Pet-3] (*A*).....Ap 54
Machinery Noise May Indicate Loss of Efficiency and Severity of Dynamic Stresses [70-WA/Pet-2] (*A*).....Ap 55
Refinery Flair System Injectors Redesigned for Noise Control [70-WA/Pet-4] (*A*) Ap 55
Nuclear Power Growth Challenges AEC Enriched Uranium Production Capacity.....My 74
Performance Evaluation of a Gas Turbine Drive Industrial Building Cooling System [71-GT-49] (*A*).....Jl 39
Reducing Factory Noise (*OS*).....N 44
Robot Forges Ahead (*BTR*).....Je 35
The Role of Private Enterprise in a Post-Industrial Society (*TL*)
1: Education, Technology and Business, A Case Study of Business in the Future—Problems and Opportunities.....Ag 71
Seventeen Years Operating Experience with Gas Turbines in a Petrochemical Plant [71-GT-80] (*A*).....Jl 41
Technology for Tomorrow vs. Profit for Today [1970 Wright Lecture].....My 16
Technology vs. Profit (*C*).....Jl 52
Ten Years' Progress in Management, 1960–1970
II: Management's Social Responsibilities
A Philosophy of Industrial Air Pollution Control [70-WA/Mgt-11] (*A*).....Mr 57
The Utilization of Engineers in Industry [70-WA/Mgt-12] (*A*).....Mr 57
IV: Management Education
Management Education—Industrial, 1960–1969 [70-WA/Mgt-7] (*A*).....Mr 58
12 percent Chromium Steel Disks for Industrial Gas Turbines [71-GT-39] (*A*).....Jl 38
The Two-Shaft Industrial Gas Turbine Goes to Sea—Again [71-GT-68] (*A*).....Jl 40
U. S. Industrial Economy: Outlook—1971
Growth in Sight Following Last Year's Sag—Lessening of Inflation (*NR*).....F 83
Inelasticity
Wave-Front Stress Relaxation in a One-Dimensional Nonlinear Inelastic Material with Temperature and Position Dependent Properties [70-WA/APM-20] (*A*).....My 58
Inertia
See also Flow
Design Considerations in Inertia Welding of Turbocharger and Gas Turbine Components [71-GT-21] (*A*).....Ag 45
The Effects of Shear Deformation and Rotary Inertia on the Lateral Frequencies of Cantilever Beams in Bending [71-Vibr-79] (*A*).....D 52
The Effects of Temperature and Inertia on Hydrostatic Thrust Bearing Performance [70-Lub-10] (*A*).....Ja 43
Inertia Force Analysis of Spatial Mechanisms [70-Mech-5] (*A*).....Ja 46
Inertia Welded Jet Engine Components [71-GT-33] (*A*).....Jl 37
Infante, E. F.
Bounds on Motions of Some Lumped and Continuous Dynamic Systems [71-APMW-3] (*A*) N 55
Infinite Products
Transient Response of Fluid Lines Through Use of Infinite Products [70-WA/FE-22] (*A*).....F 74
Inflation
U. S. Industrial Economy: Outlook—1971
Growth in Sight Following Last Year's Sag—Lessening of Inflation (*NR*).....F 83
Information
NASA Tech Briefs
See News
Information Systems
See also Communications; Data Systems; National Commissions

Information Systems (*Continued*)
GEOALERT Warning System (*NB*) ..... N 69
Information Retrieval (*NB*) ..... O 73
International Cooperation on Translations (*TL*) "Translations Register-Index" ..... Je 63
Joint Information Project [between U. S. and Yugoslavia] (*NB*) ..... D 67
Simplified Techniques for Personal Filing and Retrieval of Engineering Information [71-DE-48] (*A*) ..... Ag 47
Xerox 840
Speeds Flow of Engineering Data (*BTR*) .. Ja 36
Infrared Devices and Techniques
The Design and Application of the Traversing Infrared Inspection System (TIRIS) [71-DE-37] (*A*) ..... Ag 46
"Heat Picture" of N. Y. Waters (*BTR*) ..... Ja 33
Infrared Detection of Gaseous Effluents (*BTR*) Mr 48
Infrared Spectrophotometry as a Quality Control Tool [71-DE-44] (*A*) ..... Ag 47
Ingelfinger, A. L.
Integrated Waste Management-Water System Using Radioisotopes for Thermal Energy [71-Av-4] (*A*) ..... O 55
Ingram, J. D.
A Continuum Theory of Fluid Saturated Porous Media [70-WA/APM-36] (*A*) ..... Je 47
Ingram, Sydney B. resigns as executive secretary of ECPD ..... N 89
Injection Technology
The Dynamic Delivery Rate and the Hydraulic Similarity of Injection Pumps for High-Speed Engines [71-DGP-3] (*A*) ..... Ag 48
Liquid Distributions of a Low Pressure Drop Injection System-Gas Turbine "Vaporizer" Design [71-GT-38] (*A*) ..... Ag 45
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Refinery Flair System Injectors Redesigned for Noise Control [70-WA/Pet-4] (*A*) Ap 55
Reduction of Nitrogen Oxides from Gas Turbines by Steam Injection [71-GT-58] (*A*) ..... Ag 46
Transition and Mixing in the Shear Layer Produced by Tangential Injection in Supersonic Flow [71-FE-24] (*A*) ..... S 51
Inlets
Nonuniform Flow in the Inlet Section of a Straight Channel [70-WA/FE-27] (*A*) ..... F 74
Inoue, J.
Studies on the New Vibratory Powdering Machine [71-Vibr-26] (*A*) ..... N 50
Inputs
Transient Response of Fluid Lines Including Frequency Modulated Inputs [70-WA/Flcs-1] (*A*) Je 42
Inspection Equipment and Methods
Application of Air Bearings and Laser Interferometry to an Inspection Machine [70-WA/Prod-29] (*A*) ..... Mr 63
Carriage-Rail Assembly for High-Resolution Mechanical Positioning (*NTB*) ..... D 38
Design, Fabrication, Inspection and Testing of Multiwall Pressure Vessels [71-PVP-57] (*A*) S 50
The Design and Application of the Traversing Infrared Inspection System (TIRIS) [71-DE-37] (*A*) ..... Ag 46
Design for In-Service Inspection of Boiling Water Reactor Pressure Vessels [71-PVP-59] (*A*) .. S 50
In-Service Inspection of San Onofre Nuclear Generating Station
Unit 1 [71-PVP-51] (*A*) ..... S 48
Units 1, 2, and 3 [70-WA/NE-5] (*A*) ..... My 55
Ultrasonic Inspection of Brazed-Tube Joints (*NTB*) D 39
Ultrasonic Inspection of Cold Forgings (*BTR*) S 39
Ultrasonic Inspection of Fusion Butt Welds (*NTB*) Mr 47
Instability
See also Rayleigh-Taylor Instability
Boiling-Flow Instabilities in a Cross-Connected Parallel-Channel Upflow System [71-HT-12] (*A*) O 61
Dynamic Instability of a Cantilever Column Subjected to a Follower Force Including Thermomechanical Coupling Effect [71-APM-L] (*A*) O 60
A Dynamic Model of Gas Turbine Engine Main Combustor Instability [71-GT-73] (*A*) ..... Jl 40
Flow-Induced Instability of an Elastic Tube [71-Vibr-39] (*A*) ..... N 51
Friction-Instability: A New Design Parameter for Brakes [71-DE-K] (*A*) ..... Jl 48
Review of Two-Phase Flow Instability [71-HT-42] (*A*) ..... N 58
Study of the Onset of Premature Heat-Transfer Crisis During Hydrodynamic Instability in a Full-Scale Reactor Channel [71-HT-11] (*A*) O 61
Subharmonic Rotor Instability Due to Elastic Asymmetry [71-Vibr-57] (*A*) ..... N 52
Institute for the Certification of Engineering Technicians
Certification Improves Technicians' Salaries (*EN*) Ja 64
Institute of Electrical and Electronics Engineers
Awards Edison Medal, 1971, to John W. Simpson Ap 85
NSPE—IEEE Agreement (*NB*) ..... Je 58
United Attack Underway on Engineering Unemployment ..... Jl 63
Employment Practices (*C*) ..... O 64
Institute of Fuels, United Kingdom
Agreement of Cooperation Reached Between Institute of Fuels of United Kingdom and ASME Ag 63
Institution of Mechanical Engineers of Great Britain
Watt (James) International Gold Medal Awarded to Dr. Robert R. Gilruth by Institution of Mechanical Engineers of Great Britain (*NR*) D 64
Instrumentation, Instruments
Aircraft Gas Turbine Condition Analysis Instrumentation: Its Use for the Status Diagnosis of Naval Turbine Engines [71-GT-86] (*A*) .... Jl 41
Fluidic Instrument Pressure Regulator [70-WA/Flcs-4] (*A*) ..... Je 43
Instrumentation [1971 outlook] (*NR*) ..... F 88
Insulation
New Flame-Retardant Compounds (*BTR*) ... S 43
Integral Methods
Experimental Determination of Some Kernel Functions in the Multiple Integral Method for Nonlinear Creep of Polyvinyl Chloride [70-WA/APM-21] (*A*) ..... My 59
Integral Method for Flow Between Corotating Disks [70-WA/FE-4] (*A*) ..... F 72
A Linear Compressibility Assumption for the Multiple Integral Representation of Nonlinear Creep of Polyurethane [70-WA/APM-6] (*A*) My 57
A Momentum-Integral Analysis of the Three-Dimensional Turbine End-Wall Boundary Layer [71-GT-6] (*A*) ..... Ag 44
Nonsimilar Solution of the Laminar Boundary Layer in an Oscillatory Flow by an Integral Matrix Method [71-FE-10] (*A*) ..... Ag 54
A Solution of Shock-Induced Boundary-Layer Interaction Problems by an Integral Method [71-APM-21] (*A*) ..... S 56
Integrated Mechanisms Program (IMP)
IMP (Integrated Mechanisms Program), A Computer-Aided Design Analysis System for Mechanisms and Linkage [71-Vibr-80] (*A*) D 52
Integration Methods
Exact Analysis of a Thick Sandwich Conical Shell by Forward Integration [71-APMW-20] (*A*) N 56
Intensity
Distribution of Mass, Velocity, and Intensity of Turbulence in a Two-Phase Turbulent Jet [70-WA/APM-45] (*A*) ..... Je 48
Inter-American Development Bank [Brazil]
Power for Brazil (*OS*) ..... Je 39
Interferometry
An Interferometric Technique for Temperature and Concentration Measurement for an Air-Water Interface [70-WA/Temp-1] (*A*) ... My 54
Lasergage, Model 5900 (*OS*) ..... Ja 41
International Commision for Rules for the Approval of Electrical Equipment (CEE)
1970 Standards Catalog Offered Free by ANSI (*TL*) ..... Mr 77
International Congress on Combustion Engines (CIMAC)
ASME Panel Examines Progress and Current Needs in Gas Turbine Codes and Standards Ap 77
International Electrotechnical Commission (IEC)
1970 Standards Catalog Offered Free by ANSI (*TL*) ..... Mr 77
International Federation of Automatic Control
IFAC Congress
5th, 1972
Call for papers ..... Ja 103
IFAC Management Control Symposium, 1971
Call for papers ..... Ja 103
International Institute for Geothermal Research
Cosponsors, with UN, Symposium on Geothermal Resources, Pisa, Italy (*OS*) ..... My 51
International Nickel Co.
Inco Power Conference
10th, 1971
Review ..... Ag 66
International Organization for Standardization (ISO)
1970 Standards Catalog Offered Free by ANSI (*TL*) ..... Mr 77
Technical Committee 70
Subcommittee 6 Gas Turbine Standards
ASME Panel Examines Progress and Current Needs in Gas Turbine Codes and Standards Ap 77
Subcommittee 6
United States National Committee
For Gas Turbines: New Standard Rating Point ..... O 34
International Research and Technology Corp.
Reduced Pollution Power Systems (*NB*) ..... N 68
Inversion
The RSRC Mechanism—Kinematic Analysis and Synthesis of a Constrained Inversion [70-Mech-83] (*A*) ..... Ja 54
A Strong Relationship Between New and Old Inversion Mechanisms [70-Mech-9] (*A*) ... Ja 46
Ions
Flames, Ions, and Electric Fields [70-WA/Fu-4] (*A*) F 75
Irradiation
Fracture Safety Analysis Concepts for Nuclear Pressure Vessels, Considering the Effects of Irradiation [70-WA/Met-2] (*A*) ..... My 52
Irvine, A. R.
LMFBR Fuel Shipping—Containment and Heat Transport [71-NE-6] (*A*) ..... Jl 42
Irwin, J. L.
Using Laser Holography for Nondestructive Testing ..... Mr 27
Isasi, J. A.
Analysis of Cracks in Welded Elbows [71-PVP-32] (*A*) ..... Ag 53
Isles, Frederick W. deceased ..... Mr 88
ISO
See International Organization for Standardization
Isolation
Application of Gradient Search Procedures for the Identification of Unknown System Parameters from System Response Observations [71-Vibr-50] (*A*) ..... N 52
The Autoparametric Vibration Absorber [71-Vibr-49] (*A*) ..... N 52
Damped Isolation and Undamped Vibration Absorber Model for Vibration Control [71-Vibr-45] (*A*) ..... N 52
On Elastomer Mount Design When Machine and Foundation Are Multi-Resonant Structures [71-Vibr-51] (*A*) ..... N 52
Optimum Design of a Linear Multi-Degree-of-Freedom Shock Isolation System [71-Vibr-81] (*A*) ..... D 52
Relationship Among Frequency, Amplitude, Damping and Human Awareness for Floor Vibration Due to Impact [71-Vibr-44] (*A*) .. N 51
Transient Response of a Vibration Isolation System [71-Vibr-33] (*A*) ..... N 50
Isostatic Processing
Hot Isostatic Processing [based on 70-PVP-2] F 33
Isotropy
Creep at Constant Stress in Isotropic Solids [71-APM-23] (*A*) ..... S 57
Laminated Transversely Isotropic Cylindrical Shells [70-WA/APM-53] (*A*) ..... Je 48
Stress Concentration Around a Hyperboloidal Notch Under Tension in a Transversely Isotropic Material [70-WA/APM-24] (*A*) ... My 59
Israel Institute of Technology
New Facet to Diamond Polishing (*BTR*) .... D 40
Italy
New Desalting Plant (*OS*) ..... Jl 34
Itao, K.
Polydyne Cam Mechanisms for Typehead Positioning [71-Vibr-97] (*A*) ..... N 54
Iteration
See Analysis Methods
Ito, H.
Flow in Rotating Straight Pipes of Circular Cross Section [70-WA/FE-13] (*A*) ..... F 73
Ito, T.
Free-Convective Heat Transfer to a Supercritical Fluid [71-HT-27] (*A*) ..... O 62
Ito, Y. M.
Initial Yield Surface of a Unidirectionally Reinforced Composite [71-APMW-19] (*A*) ..... N 56
IUWDS (International Ursigram and World Days Service)
GEOALERT Warning System (*NB*) ..... N 69
Ives, C. B. deceased ..... Ag 87
Iwan, W. D.
Calculation of Correlation Matrices for Linear Systems Subjected to Nonwhite Excitation [71-APMW-10] (*A*) ..... N 55
The Merit of Different Error Minimization Criteria in Approximate Analysis [71-APMW-8] (*A*) N 55

J

Jackson, C.
Using the Orbit to Balance Rotating Equipment [based on 70-Pet-30] ..... F 28

Jackson, J. K.
Overview of a 90-Day Manned Test in a Space Station Simulator [71-Av-38] (*A*) ..... O 58

Jackson, J. P.
Rancho SECO Quality Assurance Program [70-WA/NE-1] (*A*) ..... My 55

Jackson, W. E., Jr.
Regional Air Quality Control—The Impact and Costs of Refuse Incineration [70-WA/Inc-1] (*A*) F 67

Jackson, W. M.
Photoelastic Study and Fatigue Tests of a Contoured, Integrally Reinforced Branch Connection [71-PVP-5] (*A*) ..... Ag 50

Jacobs, R.
Evaluation of Cardiac Work by Means of the Thermodilution Technique Employing the Thermocatheter [70-WA/Temp-2] (*A*) ... My 54

Jacobus, David D. elected Fellow ASME .. S 99

Jahnke, L. P.
Inertia Welded Jet Engine Components [71-GT-33] (*A*) ..... Jl 37

Jahsman, W. E.
Reexamination of the Kolsky Technique for Measuring Dynamic Material Behavior [70-WA/APM-31] (*A*) ..... My 59

Jaklitsch, J. J., Jr.
ASME: Direction for the Future (*Ed*) ..... My 15
ASME Goals—A Year Later (*Ed*) ..... Ap 15
ASME Updates Legislative Policy (*Ed*) ..... Je 9
The Energy Crisis (*Ed*) ..... N 13
The Engineer: An Individual...(*Ed*) ..... D 11
Engineering a Better Environment (*Ed*) ..... Ja 9
The Environment and Employment (*Ed*) ..... F 11
Power in the Year 2001 (*Ed*) ..... S 17
Wanted: Power Plant Sites (*Ed*) ..... Mr 17

Jakob (Max) Memorial Award
See Honors

Jakubowski, Stanley J.
Growth ≠ Progress (*C*) ..... S 58
Standard for Hyperbaric Facilities [71-PVP-58] (*A*) S 50

Jamaica
Overland Belt Conveying of Jamaican Bauxite [70-WA/MH-5] (*A*) ..... My 53

James, Robert B. appointed general manager of Transit Department, New Orleans Public Service ..... Mr 84

Jansen, G.
Enhanced Evaporating Film Heat Transfer from Corrugated Surfaces [71-HT-33] (*A*) ..... N 57

Japan
Diagonal-Cable Bridge (*OS*) ..... Mr 52
Gas Turbine Generator (*OS*) ..... Ap 52
Hitachi Central Research Laboratory
Computer Programs Exchange (*NB*) ..... O 73
Ministry of International Trade and Industry (MITI)
Industrial Science and Technology Agency
Chemical Industrial Research Institute
Marine Biological Laboratory
Desalination Test Plant [to produce low-cost fresh water] (*OS*) ..... N 44
More N-Power (*OS*) ..... D 45
New Mini-Boiler for Shops (*OS*) ..... Ag 42
Nuclear Power Expansion (*OS*) ..... Je 39

Japan Purification Co. formed by Carborundum Co. and Shoketsu Kinsoko Kogyo Co., Ltd., to manufacture and market liquid filtration equipment and media (*OS*) ..... S 47

Jeffries, N. P.
Variable Conductance Wall [71-HT-39] (*A*) .. N 58

Jeje, A. A.
Experimental and Theoretical Study of Absorption in an Anisotropically Scattering Medium [71-HT-20] (*A*) ..... O 62

Jeneszmonka, J. P. C.
An Experimental Study of Coolant Combustion Effects in Transpiration Cooling [71-GT-72] (*A*) Jl 40

Jennings, F. A.
Natural Gas Fuel Tanks for Automobiles: Safety Problems [71-PVP-62] (*A*) ..... S 50

Jensen, Frank G. joins Research-Cottrell, Inc., in new position of manager for thermal systems planning ..... Je 77

Jensen, P. W.
The Missing Link: An Extension of Gruebler's Theory [70-Mech-70] (*A*) ..... Ja 52

Jerk
Further Considerations of Jerk Pump Design Factors for High Specific Output Diesel Engines [71-DGP-12] (*A*) ..... Ag 49

Jetliners
See also Vehicles, Air and Aviation
Bearing Up With the 747 (*BTR*) ..... Ja 32

Jets
Characterisation of Free and Impinging Axisymmetric Jets with and without Auxiliary Flows [70-WA/Flcs-6] (*A*) ..... Je 43
Confined Jet Mixing for Nonseparating Conditions [70-WA/FE-2] (*A*) ..... F 71
Distribution of Mass, Velocity, and Intensity of Turbulence in a Two-Phase Turbulent Jet [70-WA/APM-45] (*A*) ..... Je 48
Dynamic Behavior of a Switching Jet in a Model Bistable Fluidic Device [70-WA/Flcs-20] (*A*) Je 44
Experimental Investigation of Methods for Improving the Dynamic Response of a Twin-Spool Turbojet Engine [71-GT-14] (*A*) ..... Jl 36
An Experimental Study of Rectilinear Jet-Flap Cascades [71-FE-14] (*A*) ..... Ag 55
Gas Turbine Blade Heat Transfer Augmentation by Impingement of Air Jets Having Various Configurations [71-GT-9] (*A*) ..... Ag 44
Heat-Transfer Parameters and Transport Properties for Air and Jet Fuel-Air Mixtures [71-HT-41] (*A*) ..... N 58
Hydrodynamic Characteristics of a Cambered Hydrofoil with a Jet Flap [71-APMW-17] (*A*) N 56
Interaction of a Heated Jet with a Deflecting Stream [71-HT-2] (*A*) ..... O 60
On the Measurement of Fluctuating Pressure in the Mixing Zone of a Round Jet [71-FE-31] (*A*) S 53
Noise Abatement in Industry
Gas Turbine Noise Abatement
On the Noise from Jet Diffusers [70-WA/GT-5] (*A*) ..... Ap 56
Some Results of Recent Research on Fan and Jet Noise [70-WA/GT-15] (*A*) ..... Ap 57
A Simplified Two-Dimensional Jet Reattachment Model [70-WA/Flcs-8] (*A*) ..... Je 43
Three-Dimensional Turbulent Jet Reattachment [70-WA/Flcs-5] (*A*) ..... Je 43
The Turbulence Characteristics of Two-Dimensional Wall-Jet and Wall-Wake Flows [70-WA/APM-35] (*A*) ..... Je 47
A Two-Dimensional Analysis of a Heated Free Jet at Low Reynolds Numbers [70-WA/FE-3] (*A*) ..... F 71
Vortex Induced and Forced Switching of Two-Dimensional Jets [70-WA/Flcs-13] (*A*) .... Je 44

Jetskim
Sea Brooms (*BTR*) ..... O 46

Jett, George C. deceased ..... Ap 88

Jettner, Edward joins Planning Research Corp., McLean, Va., as a senior associate in Systems Engineering and Economics Division .. Ja 104

Jewels
See Diamonds; Gems

Jirsa, J. O.
Effective Stiffness of Concrete Coated Line Pipe [71-Pet-26] (*A*) ..... D 50

Joerger, C. A. deceased ..... Jl 78

Johanson, Norman R. elected ASME Region V Vice-President 1972–1974 ..... N 85

JOHN SERGEANT
The Two-Shaft Industrial Gas Turbine Goes to Sea—Again [71-GT-68] (*A*) ..... Jl 40

Johnson, B. M.
Enhanced Evaporating Film Heat Transfer from Corrugated Surfaces [71-HT-33] (*A*) ..... N 57

Johnson, C. G.
In-Service Inspection of San Onofre Nuclear Generating Station Units 1, 2, and 3 [70-WA/NE-5] (*A*) ..... My 55

Johnson, C. N.
Cavity Resonance in Fractional Horsepower Refrigerant Compressors [71-Vibr-88] (*A*) .. N 54
Noise Study of Fractional Horsepower, Rotary Vane, Refrigerant Compressor [71-Vibr-89] (*A*) N 54

Johnson, H. C. deceased ..... Je 80

Johnson, H. T.
A Turbine Speed, Main-Engine Fuel Pump [71-GT-24] (*A*) ..... Ag 45

Johnson, Hugo E. deceased ..... Mr 88

Johnson, R. H.
Noise Abatement in Industry
Gas Turbine Noise Abatement
Formation and Measurements of Nitrogen Oxides in Gas Turbines [70-WA/GT-3] (*A*) Ap 56
Reduction of Nitrogen Oxides from Gas Turbines by Steam Injection [71-GT-58] (*A*) ..... Ag 46

Johnson, Reynold Benjamin receives Machine Design Award at 1970 WAM Ja 69, 70

Johnson, W. C. deceased ..... N 93

Johnson, W. P.
Pulsation Mitigation Experience at the Willamar Waterflood Plant [71-Pet-12] (*A*) ..... D 48

Johnson-Sea-Link
The "Johnson-Sea-Link"—The First Deep-Diving Welded Aluminum Submersible [70-WA/UnT-6] (*A*) ..... Je 45

Johnston, J. P.
Two-Dimensional Diffuser Performance with Subsonic, Two-Phase, Air-Water Flow [71-FE-20] (*A*) ..... S 51

Joining Techniques
See also Fasteners, Fastening
Joining Metals with Different Expansion Rates (*NTB*) ..... Ag 37
Joining Techniques for Fabrication of Composite Air-Cooled Turbine Blades and Vanes [71-GT-32] (*A*) ..... Jl 37

Joints
Adhesive-Bonded Structural Joints (*NTB*) ... Jl 31
The Dynamic Characteristics of the Human Intervertebral Joint [70-WA/BHF-6] (*A*) Ap 63
Ultrasonic Inspection of Brazed-Tube Joints (*NTB*) D 39

Jones, Charles E. chosen vice-president of operations for Bailey Meter Co., a subsidiary of Babcock & Wilcox ..... F 101

Jones, O. E.
Radial Stress Release Phenomena in Plate Impact Experiments: Compression—Release [71-APMW-16] (*A*) ..... N 56

Jones, R. W.
Design and Operating Experiences with Gas Turbine Combined Cycle Units [71-GT-22] (*A*) Ag 45

Jones, W. T.
Forces on Submarine Pipelines from Steady Currents [71-UnT-3] (*A*) ..... D 46

Jones, Wilfred appointed vice-president, Corporate Projects Div., Daniel Construction Co., Greenville, S. C. ..... Jl 74

Jonsson, John Erik elected member of National Academy of Engineering Je 77; receives Hoover Medal from ASCE, AIME, ASME, IEEE at 1970 WAM ..... Ja 76

Joplin, J. L.
Requirements of Packaged Gas Compressor Units [71-Pet-4] (*A*) ..... D 47

Joseph, R. A.
A Study of Plunge (or Form) Machining of Low-Resulfurised Steel on a Multispindle Automatic Screw Machine
Part 1: Influence of Speed, Feed, and Ingot Variation on Diameter Increase and Surface Finish in Prolonged Machining [70-WA/Prod-18] (*A*) ..... Mr 61
Part 2: Influence of Speed, Feed, and Duration of Cutting on Worn Tool Geometry [70-WA/Prod-19] (*A*) ..... Mr 62

Joshi, N. D.
An Analysis of Combined Free and Forced Convection Heat Transfer from a Horizontal Circular Cylinder to a Transverse Flow [71-HT-O] (*A*) ..... N 59

Jost, H. Peter elected Fellow ASME ..... F 104

Joule-Thomson Effect
The Joule-Thomson Effect in Compressed Liquid Water [70-WA/PID-2] (*A*) ..... Mr 63

Joyce, J. W., Jr.
Flueric Carbon Dioxide Concentration Sensor [70-WA/Flcs-10] (*A*) ..... Je 43
A Synopsis of the Use of Fluerics in Medicine [70-WA/Flcs-16] (*A*) ..... Je 44

Joystick
See Control Systems

Judd, R. L.
Superheat Layer Thickness Measurements in Saturated and Subcooled Nucleate Boiling [71-HT-43] (*A*) ..... N 58

Julien, H. L.
Experimental Hydrodynamics of the Accelerated Turbulent Boundary Layer With and Without Mass Injection [71-HT-F] (*A*) ..... N 58

Juneja, Balvir
Synthesis of Six-Link Mechanisms for Simultaneous Coordination of Coupler, Input, and Output Links [70-Mech-57] (*A*) ..... Ja 51

Junger, Miguel C. elected Fellow ASME .. N 90

Noise Abatement in Industry
Interaction of Sound and Structures
Sound Transmission Through an Elastic Enclosure Acoustically Closely Coupled to a Noise Source [70-WA/DE-12] (*A*) F 67, Ap 56

Juniunis, V. J.
Laminar Film Condensation from a Steam-Air Mixture Undergoing Forced Flow Down a Vertical Surface [71-HT-E] (*A*) ..... N 58

K

Kacker, S. C.
The Turbulence Characteristics of Two-Dimensional Wall-Jet and Wall-Wake Flows [70-WA/APM-35] (*A*) ..... Je 47
Kaiser, Elmer R. elected Fellow ASME Ap 86; named Diplomate of American Academy of Environmental Engineers ..... My 88
Kallas, Danos H. granted Navy Meritorious Civilian Service Award for third time in his career as federal employee ..... Ag 85
Kalnins, A.
Axisymmetric Postbuckling and Nonsymmetric Buckling of a Spherical Shell Compressed Between Rigid Plates [71-APMW-7] (*A*) ..... N 55
Kalpa-Tarou (Tree of Imagination)
The Art of the Matter (*BTR*) ..... Ja 37
Kamiyama, S.
The Influence of Wall Conductance on Performance of the MHD Hydrostatic Thrust Bearing [70-Lub-1] (*A*) ..... Ja 42
Kane, Edmund J. deceased ..... Ja 107
Kane, G. E.
A Continuing Study in the Determination of Temperatures in Metal Cutting Using Remote Thermocouples [70-WA/Prod-23] (*A*) ..... Mr 62
Kannapan, A.
On Model Investigations Pertaining to Scavenging in Two-Stroke Diesel Engines [71-DGP-8] (*A*) Ag 49
Kansas State University presents special recognition certificate to M. A. Durland, emeritus dean, College of Engineering ..... Jl 74
Kantola, R.
Transient Response of Fluid Lines Including Frequency Modulated Inputs [70-WA/Flcs-1] (*A*) ..... Je 42
Kanzaki, K.
Polydyne Cam Mechanisms for Typehead Positioning [71-Vibr-97] (*A*) ..... N 54
Kao, Hsiao C.
A Numerical Method and Higher Approximations for a Self-Acting, Gas-Lubricated Bearing of Finite Length [70-Lub-23] (*A*) ..... Ja 45
Kao, R.
A General Nonlinear Relaxation Iteration Technique for Solving Nonlinear Problems in Mechanics [70-WA/APM-43] (*A*) ..... Je 48
Kaplan, R. E.
Aerodynamic Approximations for Unsteady Supersonic Flow Through Ducts of Revolution [71-Vibr-23] (*A*) ..... N 50
Kappel, Frederick R. awarded Henry Gantt Memorial Gold Medal ..... Ap 80
Kar, S.
Evaluation of Angle to be Subtended by the Spiral of Semispiral Casings [70-WA/FE-18] (*A*) F 74
Optimum Vane Number and Angle of Centrifugal Pumps with Logarithmic Vanes [70-WA/FE-20] (*A*) ..... F 74
Karam, R. D.
Thermal Control of ATS F & G [71-Av-28] (*A*) O 57
Karlekar, B. V.
Nonstationary Quasi-Static Thermal Displacements and Thermal Stresses in a Cylindrical Body of Finite Height Subject to Convective Heat Losses [71-APM-D] (*A*) ..... O 59
Kashay, A. M.
Dynamic Shock Phenomena in Rolling Mills [71-Vibr-95] (*A*) ..... D 53
Kassir, M. K.
Thermal Crack Propagation [71-Met-N] (*A*) S 55
Kasuba, R.
Dynamic Loads on Spur Gear Teeth by Analog Computation [71-DE-26] (*A*) ..... Jl 46
Kasza, K. E.
Low-Speed Slip Flow over a Wedge [70-WA/APM-26] (*A*) ..... My 59
Katz, J. L.
Hard Tissue as a Composite Material
Part 1: Bounds on the Elastic Behavior [70-WA/BHF-3] (*A*) ..... Ap 62
Katz, S.
Characterization of Free and Impinging Axisymmetric Jets with and without Auxiliary Flows [70-WA/Flcs-6] (*A*) ..... Je 43
A Generalized Static Model for Fluidic Impact Modulators [70-WA/Flcs-2] (*A*) ..... Je 43
Katz, Sherwin appointed chief application engineer for Waterman Hydraulics, Div. of Componetrol, Inc. ..... N 89
Katz, W. J.
Skimming Oil from Basins and Lagoons [based on 70-Pet-3] ..... Ap 24
Kauffeld, Theodore J. deceased ..... Ja 107
Kaufman, A.
Joining Techniques for Fabrication of Composite Air-Cooled Turbine Blades and Vanes [71-GT-32] (*A*) ..... Jl 37
Kaufman, K. A.
Rolamite—A Tool in Hysteresis Measurement [71-Vibr-27] (*A*) ..... N 50
Kaufman, R. E.
Operators for the Kinematic Synthesis of Mechanisms by Stretch-Rotation Techniques [70-Mech-79] (*A*) ..... Ja 54
Kavanagh, P.
Some Observations on the Velocity Profiles in Fully Developed Viscous Flow in Turbomachines [70-WA/FE-24] (*A*) ..... F 74
Kaye, James W. deceased ..... My 91
Kays, D. D.
Development and Application of Mechanically Enhanced Heat-Transfer Surfaces [71-HT-40] (*A*) ..... N 58
Kays, W. M.
Experimental Hydrodynamics of the Accelerated Turbulent Boundary Layer With and Without Mass Injection [71-HT-F] (*A*) ..... N 58
Heat Transfer to the Transpired Turbulent Boundary Layer [71-HT-44] (*A*) ..... N 58
Ke, J. S.
Local and Gross Deformations in Cracked Metallic Plates and an Engineering Ductile Fracture Analysis [71-PVP-52] (*A*) ..... S 48
Keaten, R. W.
Safety Criteria and Design for an FBR Demonstration Plant [71-NE-17] (*A*) ..... Jl 44
Keck, J. Wylly receives Fellow ASME certificate ..... Mr 85
Keer, L. M.
Indentation of an Elastic Layer by an Array of Punches Moving with Steady Velocity [70-WA/APM-30] (*A*) ..... Je 47
Kegg, R. L.
Permanent Interest (*C*) ..... Ag 56
Kehrberg, R. Frank
The Energy Dilemma (*C*) ..... Je 50
Kelleher, M.
Free Convection from a Vertical Plate with Discontinuous Wall Temperature [71-HT-B] (*A*) N 58
Kellenberger, W.
Should a Flexible Rotor Be Balanced in N or (N + 2) Planes? [71-Vibr-55] (*A*) ..... N 53
Kelley, C. W.
Operation Arctic ..... F 12
Kellogg (M. W.) Co.
SNG Agreement (*OS*) ..... D 44
Kellum, G. B.
Signature Analysis of Plant Equipment [71-Pet-14] (*A*) ..... D 48
Kelly, Louis J. (Jack) receives Fellow ASME certificate Mr 86; a vice-president of Bechtel Corp., retires after 40-year career in refinery, chemical, fertilizer, and metallurgical fields—will continue to serve Bechtel as a consultant D 80
Kelly, R. C. deceased ..... D 83
Kelly, W. H.
Thermal Control of ATS F & G [71-Av-28] (*A*) O 57
Kelsey, R. A.
The "Johnson-Sea-Link"—The First Deep-Diving Welded Aluminum Submersible [70-WA/UnT-6] (*A*) ..... Je 45
Kelsey, W. H. deceased ..... My 91
Kemper, J. D.
Optimum Damping and Stiffness in a Nonlinear Four-Degree-of-Freedom System Subject to Shock Load [70-WA/APM-18] (*A*) ..... My 58
Kempner, J.
Web-Stiffened Sandwich Structures [71-APM-8] (*A*) ..... S 55
Kendall, D. P.
The Effect of Strain Rate and Temperature on Yielding in Steels [71-Met-R] (*A*) ..... S 55
Kennedy, Verne C., Jr. accepts position with Hayek Engineering Corp., Zurich, Switzerland, as president of Hayek's American affiliate in Chicago ..... Ap 85
Kent, Lawrason R. deceased ..... Mr 88
Kenyon, N.
Elevated Temperature Properties of Maraging Steel Plates and Welds [71-Met-E] (*A*) ..... Ag 48
Kern, Donald Q. corecipient at 1970 WAM of Heat Transfer Division Memorial Award Ja 71; deceased ..... Je 80
Kerska, Donald H. receives Detroit Section Past-Chairman's Award ..... Ja 104
Kersten, L.
Computer-Aided Methods to Relate Analytical and Graphical Design of Mechanisms [70-Mech-77] (*A*) ..... Ja 53
Kessel, P. G.
Dynamic Response of Cylindrical Shells with Initial Stress and Subjected to General Three-Dimensional Surface Loads [71-APM-12] (*A*) S 56
Kester, J. D.
Noise Abatement in Industry
Gas Turbine Noise Abatement
Future Trends in Aircraft Engine Noise Research [70-WA/GT-13] (*A*) ..... Ap 57
Kestin, Joseph elected Fellow ASME ..... D 81
The Influence of Turbulence on Mass Transfer from Cylinders [70-WA/HT-3] (*A*) ..... Ap 58
Ketchie, Edgar M. elected National Director for Region V of Society of Manufacturing Engineers ..... F 101
Kettering (Eugene W.) Engineering and Science Center
See Engineering and Science Institute
Khan, A. R.
Heat Transfer from Large Double-Fluted Vertical Tube Evaporators [71-HT-34] (*A*) ..... N 57
Kibler, J. J.
Model II Fatigue Crack Propagation [71-Met-J] (*A*) ..... S 54
Kiburz, Jack Y. named a job development executive with National Alliance of Businessmen Mr 84; named St. Louis, Mo., metropolitan area director for the National Alliance of Businessmen ..... Je 77
Kidd, Alexander deceased ..... F 106
Kidd, W. E.
Low Cost Short Life Gas Turbine Design [71-GT-69] (*A*) ..... Jl 40
Kilaparti, S. R.
Combined Helium and Steam Cycle for Nuclear Power Plants [based on 70-WA/NE-3] Ag 14
Combined Cycle (*C*) (*AC*) ..... N 61
A Combined Helium and Steam Cycle for Nuclear Power Generation [70-WA/NE-3] (*A*) My 55
Kindl, Fred H. elected Fellow ASME ..... Jl 77
Kindley, L. M.
Application of Reverse Osmosis to Wash Water Recovery for Manned Space Flights [71-Av-1] (*A*) ..... O 54
Kinematics
See also Linkages; Mathematics
Differential Displacement Matrices and the Generation of Screw Axis Surfaces in Kinematics [70-Mech-1] (*A*) ..... Ja 45
On Kinematic and Force Analysis of Peaucellier's Linkage [70-Mech-47] (*A*) ..... Ja 51
Kinematic Models of Spatial Mechanisms [70-Mech-74] (*A*) ..... Ja 53
Kinematic Synthesis of a Geared Five-Bar Function Generator [70-Mech-2] (*A*) ..... Ja 45
Kinematic Synthesis of Watt's Mechanism [70-Mech-50] (*A*) ..... Ja 51
Operators for the Kinematic Synthesis of Mechnisms by Stretch-Rotation Techniques [70-Mech-79] (*A*) ..... Ja 54
The RSRC Mechanism—Kinematic Analysis and Synthesis of a Constrained Inversion [70-Mech-83] (*A*) ..... Ja 54
Structural Analysis of Two General Constraint Kinematic Chains and Their Practical Application [70-Mech-37] (*A*) ..... Ja 49
Kinetics
The Kinetic and Thermal Expansion of Vapor Bubbles [71-FE-13] (*A*) ..... Ag 55
Kineto-Elastodynamics
Kineto-Elastodynamic Harmonic Analysis of Four-Bar Path Generating Mechanisms [70-Mech-61] (*A*) ..... Ja 52
Kingston, William J. appointed assistant superintendent of utilities division by Kodak Park Division, Eastman Kodak Co. ..... Ja 105
Kinsman, George receives Professional Achievement Award of Illinois Institute of Technology Alumni Association Ag 85; elected to board of directors of American Nuclear Society ..... S 97
Kirk, R. G.
The Effect of Support Flexibility and Damping on the Synchronous Response of a Single-Mass Flexible Rotor [71-Vibr-72] (*A*) ..... N 54
Kirkby, H. W.
12 percent Chromium Steel Disks for Industrial Gas Turbines [71-GT-39] (*A*) ..... Jl 38
Kirkpatrick, Edward T. named president of Wentworth Institute, Boston, Mass. ..... Ap 86
Kirkwood, Arthur C. deceased ..... Ja 107
Kirmser, Philip G.
On the Nonlinear Vibrations of Free-Free Beams [70-WA/APM-55] (*A*) ..... Je 49
Kirszenblat, A.
Transmission of a Fluidic Signal at Intermediate Distances [70-WA/Flcs-15] (*A*) ..... Je 44
Kiser, K. M.
Measurement of Sequential Velocity Development in the Aorta [70-WA/BHF-13] (*A*) ..... Ap 63
Kispert, Edwin G. retires as general manager, Industrial and Marine, Babcock & Wilcox Co. to work toward PhD in engineering at the University of New Hampshire ..... S 97
Kitchen, J. W., Jr.
Use of Optimization Techniques in Identifying a Shock Absorber: An Elementary Experience in Design Education [71-Vibr-69] (*A*) ..... N 53

Klein, E. W.
Power in the Year 2001 (*C*) ..... N 60
Klein, R. E.
Remarks on Observability and Its Application to Nonlinear and Distributed Parameter Systems [70-WA/Aut-10] (*A*) ..... F 70
Klein, R. W.
Single Process Plant Application of a Gas Turbine Generator with Recovery Boiler [71-GT-30] (*A*) ..... Jl 37
Kleiner, Gilbert N.
Space Shuttle Environmental Control and Life Support System [71-Av-16] (*A*) ..... O 56
Kleis, S. J.
A Note on the Defined Region Geometry for High-Gain Proportional Amplifiers [70-WA/Flcs-12] (*A*) ..... Je 44
Kline, K. A.
Lubrication Theory for Micropolar Fluids [71-APM-N] (*A*) ..... O 59
Klosner, J. M.
Axisymmetric Elasticity Solutions of Spherical Shell Segments [70-WA/APM-27] (*A*) ..... Je 46
Dynamics of a Submerged Ring-Stiffened Spherical Shell [70-WA/APM-42] (*A*) ..... Je 47
Knapp, J. G.
Industrial Design: Its Role in Cost Reduction [based on 71-DE-25] ..... D 23
The Role of Industrial Design in Cost Reduction [71-DE-25] (*A*) ..... Jl 46
Knauss, W. G.
Crack Propagation in a Linearly Viscoelastic Strip [71-APM-B] (*A*) ..... O 59
Knight, T. W.
Electrochemical Grinding of Cylindrical Test Specimens [71-Prod-11] (*A*) ..... Jl 49
Knowles, Dennis H. deceased ..... Mr 88
Kobayashi, A. S.
Large Deformation Analysis of the Arterial Cross Section [70-WA/BHF-15] (*A*) ..... Ap 63
Kobayashi, Shiro
Analyses of Axisymmetric Upsetting and Plane-Strain Side-Pressing of Solid Cylinders by the Finite Element Method [70-WA/Prod-4] (*A*) ..... Mr 59
Koch, B. F. deceased ..... D 83
Koch, L. J.
Applicability of EBR-II Experience to Commercial LMFBR's [71-NE-11] (*A*) ..... Jl 43
Kocskur, E.
Plume Rise and Dispersion in a Local Wind System [70-WA/Fu-1] (*A*) ..... F 75
Koetsier, T.
On the Smallest Circle Determined by Three Positions of a Rigid Body [70-Mech-11] (*A*) Ja 47
Kohn, A. O.
Noise Abatement in Industry
Gas Turbine Noise Abatement
Noise Considerations in High Bypass Ratio Fan Engine Design [70-WA/GT-14] (*A*) ..... Ap 57
Kohn, W.
Variational Methods for Dispersion Relations and Elastic Properties of Composite Materials [71-APMW-21] (*A*) ..... N 56
Kolflat, T. D.
Thermal Discharges—An Engineering Problem [70-WA/PID-5] (*A*) ..... Mr 63
Koloseus, Herman J.
Metrication (*C*) ..... D 56
Kolsky Technique
Reexamination of the Kolsky Technique for Measuring Dynamic Material Behavior [70-WA/APM-31] (*A*) ..... My 59
Konanur, A. K.
An Analytical Investigation of Free Convection Heat Transfer to Supercritical Water [70-WA/HT-6] (*A*) ..... Ap 58
Kopecky, J. A.
Drilling Riser Stress Measurements [71-Pet-1] (*A*) ..... D 47
Kopf, J. E.
A Mechanical Engineer Looks at EMI/RFI Shielding [70-WA/DE-13] (*A*) ..... F 67
Koplik, B.
Axial Vibration Transmission Characteristics of Shells of Revolution [71-Vibr-7] (*A*) ..... N 48
Koppang, R. R.
A Survey of Nitrogen-Oxides Control Technology and the Development of a Low NO_x Emissions Combustor [70-WA/Pwr-2] (*A*) ..... My 54
Korb, F. B. deceased ..... N 93
Kordt, W. H. deceased ..... Je 80
Kordyban, E. S.
An Anaerobic Biochemical Laboratory [71-PVP-10] (*A*) ..... Ag 51
Kornhauser, Alain L. corecipient of George Wallace Melville Medal at 1970 WAM ..... Ja 69, 70
Korst, H. H.
On the Correlation of Analytical and Experimental Free Shear Layer Similarity Profiles by Spread Rate Parameters [70-WA/FE-12] (*A*) ..... F 72
Korstad, R. J.
Effects of Crossflow on Impingement Heat Transfer [71-GT-1] (*A*) ..... Ag 44
Kotnick, George
Air Monitoring Facility (*C*) ..... N 60
Kottcamp, E. H.
Experimental Effort on Bursting of Constrained Disks as Related to the Effective Utilization of Yield Strength [71-PVP-49] (*A*) ..... S 48
Koubek, J. H.
Evaluating Gas Turbines for Process Applications—Economic Guides for the Decision Maker [71-GT-50] (*A*) ..... Jl 38
Kountz, K. J.
The Frequency Response of First and Second Order Lag Systems to Pulse Width Modulated Signals [70-WA/Aut-8] (*A*) ..... F 70
Kovacik, J. M.
Evaluating Gas Turbines for Process Applications—Economic Guides for the Decision Maker [71-GT-50] (*A*) ..... Jl 38
Kovats, A.
Fluid Transient Conditions in Condenser Cooling Water Systems [70-WA/FE-25] (*A*) ..... F 74
Krajcinovic, D.
Semimembrane Analysis of Cylindrical Shells Subjected to Wind Loading [70-WA/APM-7] (*A*) ..... My 57
Kramer, David J.
Growth ≠ Progress (*C*) ..... Jl 50
Kramer, S. N.
Kinematic Synthesis of Watt's Mechanism [70-Mech-50] (*A*) ..... Ja 51
Krasnoff, E.
An Experimental Study of Rectilinear Jet-Flap Cascades [71-FE-14] (*A*) ..... Ag 55
Kratz, A. P. deceased ..... N 93
Kraus, H.
Shakedown of Pressure Vessels with Ellipsoidal Heads [71-PVP-34] (*A*) ..... Ag 53
Krause, H. H.
Fireside Metal Wastage in Municipal Incinerators [70-WA/Inc-2] (*A*) ..... F 67
Krauter, A. I.
An Automated Method for Evaluating Truck Design [71-Vibr-112] (*A*) ..... D 55
Time Domain Optimization of a Vibration Absorber [70-WA/DE-5] (*A*) ..... F 66
Kressly, R. H.
Overland Belt Conveying of Jamaican Bauxite [70-WA/MH-5] (*A*) ..... My 53
Krey, G.
Dynamic Behavior and Control of Single-Shaft Closed-Cycle Gas Turbines [71-GT-16] (*A*) Ag 45
Krishna, Challa
Optimization of a Face Milling Process by Convex Programming [71-Prod-5] (*A*) ..... Jl 49
Krishnan, S.
A Two-Dimensional Analysis of a Heated Free Jet at Low Reynolds Numbers [70-WA/FE-3] (*A*) ..... F 71
Kroliczek, Edward
Experimental High Performance Heat Pipes for the OAO-C Spacecraft [71-Av-16] (*A*) ..... O 57
Kromer, William F. deceased ..... My 91
Kruger, G. B.
SEFOR Operating Experience [71-NE-7] (*A*) Jl 43
Kruger, J. B.
An Investigation of Springback in Wire Products [71-Prod-3] (*A*) ..... Jl 48
Krumhansl, J. A.
Variational Methods for Dispersion Relations and Elastic Properties of Composite Materials [71-APMW-21] (*A*) ..... N 56
Kuhn, H. A.
The Minimum Gage Problem in Thin Strip Rolling [70-Lub-24] (*A*) ..... Ja 45
Kuhns, William J. receives Outstanding Leadership Award from Metropolitan Section of ASME ..... Jl 75
Kulicke, Frederick C., Jr. receives Fellow ASME certificate ..... Je 79
Kumar, Shailendra elected associate member of Maryland Society of Professional Engineers at Baltimore ..... S 97
Kumpel, F. W.
Evolution and Technology (*C*) ..... My 60
Kumukahi
Kumukahi [based on 70-WA/UnT-11] ..... Ag 9
Kumukahi [70-WA/UnT-11] (*A*) ..... Je 46
Kunz, John E. deceased ..... Ap 88
Kuo, C. S.
Stress Analysis of High Temperature Pyrolysis Heater Coil Systems Subjected to Creep and Low Cycle Fatigue [71-Pet-17] (*A*) ..... D 49
Kuzma, D. C.
Analysis of Pumping Rings [70-Lub-4] (*A*) ..... Ja 42
Kyhl, L. C. deceased ..... N 93
Kyokuto Boeki Kaisha, Ltd.
Joint Venture Formed (*NB*) ..... Je 59

L

Laabs, E. H. deceased ..... N 93
Laboratories
An Anaerobic Biochemical Laboratory [71-PVP-10] (*A*) ..... Ag 51
Light Gas Gun for Powder Compaction [based on 70-WA/PT-4] ..... Je 18
Laboratory-Size Light Gas Gun—Design and Operation [70-WA/PT-4] (*A*) ..... Mr 65
Labrador
Operation Flowdown (*BTR*) ..... My 45
Lacerenza, Joseph A. receives Outstanding Leadership Award from Metropolitan Section of ASME ..... Jl 75
Lackey, M. E.
Thermal Energy Requirements of Air-Conditioning Systems [70-WA/Ener-4] (*A*) ..... Ap 61
Lafayette College
BA Degree in Engineering (*EN*) ..... Mr 74
Lagneborg, R.
A Theoretical Approach to Creep Deformation During Intermittent Load [71-Met-F] (*A*) Ag 48
Lahey, R. T., Jr.
Mass Flux and Enthalpy Distribution in a Rod Bundle for Single- and Two-Phase Flow Conditions [70-WA/HT-8] (*A*) ..... Ap 59
Transient Flow Measurements with Sharp-Edged Orifices [71-FE-30] (*A*) ..... S 52
Lai, J. L.
Using Viscoelastic Coatings to Reduce Structure-Borne Noise into a Fluid [71-Vibr-29] (*A*) ..... N 50
Vibration and Dynamic Stability of an Axially Moving Belt [71-Vibr-31] (*A*) ..... N 50
Lakshminarayan, K. S. appointed service manager of Avery India Limited ..... Je 78
Lal, D. N.
Shear Fatigue Crack Propagation and Shear Fracture in a Ductile Steel HY-130 [71-PVP-54] (*A*) ..... S 50
Lal, G. K.
Dynamic Expansion of an Open-Ended Tube [71-Met-K] (*A*) ..... S 54
Lalor, N.
Noise Abatement in Industry
Engine Combustion and Noise
Origins of Reciprocating Engine Noise—Its Characteristics, Prediction, and Control [70-WA/DGP-3] (*A*) ..... Ap 58
Lamar University becomes new name, on August 23, 1971, of Lamar State College of Technology (*ECA*) ..... N 83
Lamb, J. P.
An Approximate Analysis of Gaseous Film Cooling with Constant Fluid Properties [71-GT-3] (*A*) ..... Ag 44
Lamella
Shear Front-Lamella Structure in Large Strain Plastic Deformation Processes [71-Prod-1] (*A*) ..... Jl 48
Laminar Flow
The Radiation of Sound from an Airfoil Immersed in a Laminar Flow [71-GT-4] (*A*) ..... Ag 44
Theoretical Analysis of Laminar Pipe Flow in a Porous Wall Cylinder [70-WA/Flcs-3] (*A*) Je 43
Variational Method for a Pseudoplastic Fluid in a Laminar Boundary Layer over a Flat Plate [70-WA/APM-39] (*A*) ..... Je 47
Laminates, Lamination
Dry-Bearing Laminate (*OS*) ..... F 62
Theory of Laminated Plates [70-WA/APM-25] (*A*) ..... My 59
Wave Propagation in Viscoelastic Laminates [70-WA/APM-40] (*A*) ..... Je 47
LaMotte, Homer A. promoted to southwestern regional sales manager in Industrial Boiler Operations Division, Combustion Engineering, Inc. ..... D 80
Lamps
The Solid-State Lamp [based on 71-DE-6] ..... N 22
Solid-State Light Sources [71-DE-6] (*A*) ..... Je 47
Lance, G. M.
Vortex Induced and Forced Switching of Two-Dimensional Jets [70-WA/Flcs-13] (*A*) ..... Je 44
Landfill
Solid Waste (*NB*) ..... Ag 67
Solid Waste Disposal (*NB*) ..... My 76
Landis, Fred
Ten Years' Progress in Management, 1960–1970
II: Management's Social Responsibilities
The Utilization of Engineers in Industry [70-WA/Mgt-12] (*A*) ..... Mr 57
Landis, John W. elected president of American Nuclear Society ..... O 89
Landsberg, J. T.
An Experimental Study of Rectilinear Jet-Flap Cascades [71-FE-14] (*A*) ..... Ag 55
Lane, C. E. appointed system manager at Bailey Meter Co.'s Fluidics Automation Center ..... Ag 85
Lane, Richard A. deceased ..... Ap 88
Lane, Richard K. deceased ..... Mr 88

Lange, R.
The Dynamic Response of Blast Shields and Barricades to Impulsive Loadings [71-PVP-48] (*A*).....S 48
Langer, Bernard F. receives J. Hall Taylor Medal at 1970 WAM.....Ja 69, 70
Langley, R. A., Jr.
Evolution of LMFBR Plant Design for Reliability and Availability [71-NE-3] (*A*).....Jl 42
Langlois, W. E.
Slow Viscoelastic Flow at Large Distance from an Axis of Symmetry [71-APMW-9] (*A*).....N 55
Language
See Programming Language
Langworthy, R. A.
Advanced Regenerative Gas Turbine Designs for Lightweight and High Performance [71-GT-67] (*A*).....Jl 40
Lankston, R. J.
Development and Performance of a Vanadium-Nitrogen Treated Steel for High Strength Pipeline Fittings [71-Pet-18] (*A*).....D 49
Lanz, Jaime E.
Evolution and Technology (*C*).....Je 51
Larkin, A. F., Jr. elected treasurer of CEMA F 101; elected executive vice-president of Rex International Inc.....My 88
Larsen, P. K.
Elastic-Plastic Analysis of Thick-Walled Pressure Vessels with Sharp Discontinuities [71-PVP-23] (*A*).....Ag 52
Larsen, R.
Determining Critical Speeds of a Crankshaft-Flywheel Assembly for an Outboard Motor [71-Vibr-54] (*A*).....N 52
Larson, C. S.
Basic Geometric Methods in Helical Lobe Compressor Design [70-WA/FE-23] (*A*).....F 74
Laser Technology
See also Beryllium
Air Bearings for High-Speed Mirrors Rotating in a Vacuum [70-Lub-15] (*A*).....Ja 43
Application of Air Bearings and Laser Interferometry to an Inspection Machine [70-WA/Prod-29] (*A*).....Mr 63
Cut by the "Light Fantastic" (*BTR*).....Je 28
An Experiment on Laser-Generated Stress Waves in a Circular Elastic Ring [71-APMW-2] (*A*) N 55
A Gigabit per Second (*BTR*).....F 48
Laser Detects Air Pollution (*BTR*).....N 37
Laser Doppler Measures Fluid Velocity (*NTB*) Ag 37
The Laser in Aerospace (*BTR*).....My 43
Lasergage, Model 5900 (*OS*).....Ja 41
Only a Light Assist (*PB*).....My 48, 49
Split Laser Beam (*PB*).....Je 36
University Gets Laser Lab (*EN*).....Mr 74
Using Laser Holography for Nondestructive Testing.....Mr 27
Vibration Detection Using Lasers (*NTB*).....S 40
Laterite
World-Round Nickel Research (*PB*)...Mr 54, 55
Lathes
A System of Specification of Lathe Tool Nomenclature [70-WA/Prod-22] (*A*).....Mr 62
Latin America
Research Fellowships, Grants for Latin America (*EN*).....O 74
Laubach, G. E.
Life-Support System Design for a 12-Man Solar-Array Space Station [71-Av-12] (*A*).....O 55
Laurenson, R. M.
Application of Gradient Search Procedures for the Identification of Unknown System Parameters from System Response Observations [71-Vibr-50] (*A*).....N 52
Lauterbach, G. F.
Traveling Waves in Rotating Cylindrical Shells [71-DE-A] (*A*).....Jl 47
Lautzenheiser, C. E.
In-Service Inspection of San Onofre Nuclear Generating Station
Unit 1 [71-PVP-51] (*A*).....S 48
Units 1, 2, and 3 [70-WA/NE-5] (*A*).....My 55
Law, R. M.
Evaluation and Development of Engine Components and Accessories with Electrodynamic Shakers [71-DGP-4] (*A*).....Ag 49
Lawley, T. J.
Flow and Performance Characteristics for Non-Vented Vortex Amplifiers [70-WA/Flcs-18] (*A*) Je 44
Lawrence, H. B. deceased.....D 83
Laxton, J. W.
The Role of Chloride in the Corrosion Caused by Flue Gases and Their Deposits [70-WA/CD-1] (*A*).....Ap 64
Layers
Attenuation of Vibrational Amplitudes Through the Use of Multiple-Layered Damping Treatments [71-Vibr-40] (*A*).....N 51
Resonance Response Criteria of a Damped Three-Layered Beam [71-Vibr-102] (*A*).....D 54
Structural Damping Using a Four Layer Sandwich [71-Vibr-20] (*A*).....N 49
Using Viscoelastic Coatings to Reduce Structure-Borne Noise into a Fluid [71-Vibr-29] (*A*)..N 50
Layman, A. H.
Development of Modern Turbulent-Mass Hot-Mix Plant [71-Pet-28] (*A*).....D 50
Layton, Edwin T., Jr. (*author*)
"The Revolt of the Engineers: Social Responsibility and the American Engineering Profession" (*BR*).....O 66
Lea, J. F.
Flow and Performance Characteristics for Non-Vented Vortex Amplifiers [70-WA/Flcs-18] (*A*) Je 44
Lead
Lead Levels Up (*BTR*).....D 35
Leadless Gas a Fire Hazard? (*BTR*).....O 43
Leake, R. J.
Stability and Boundedness Domains of Autonomous Discrete-Time Systems [70-WA/Aut-12] (*A*).....F 70
Least Squares Method
The Stress Analysis of Plates with Single and Clustered Nozzles by the Boundary Point Least Squares Method [71-PVP-20] (*A*)..Ag 52
Lebach, John L. deceased.....Ap 88
LeCoff, Jesse receives Drexel University Evening College Alumni Association's Twenty Year Award for 1971.....Jl 74
LeCron, John R. metallurgical engineer on staff of vice-president—steel operations for Bethlehem Steel Corp., retires.....Jl 74
Lectures
Bulleid Memorial Lectures
See Bulleid Memorial Lectures
Thurston (Robert Henry) Lecture
1970: Jacob P. Den Hartog, Steady Eddies and Other Shaky Cases [*excerpts*].....Ja 78
Von Karman Vortices (*C*)..My 60; Jl 52; S 59
1971: Milton C. Shaw.....S 89
Towne (Henry Robinson)
1970: Peter F. Drucker [*excerpts*].....Ja 77
Ten Years' Progress in Management, 1960–1970—II: Management's Social Responsibilities
The Price of Success—Management Leadership in a Pluralistic Society [70-WA/Mgt-14] (*A*).....Mr 57
1971: James L. Hayes.....S 89
Wright (Roy V.) Lecture
1970: Myron Tribus [*excerpts*] Ja 74; Technology for Tomorrow vs. Profit for Today My 16
Technology vs. Profit (*C*).....Jl 52
1971: Luis A. Ferre.....S 89
LED (Light-Emitting Diode)
The Solid-State Lamp [based on 71-DE-6]....N 22
Solid-State Light Sources [71-DE-6] (*A*)...Jl 45
Ledbetter, James A.
Evolution and Technology (*C*).....Jl 52
Identifying the Engineer (*C*).....Ap 66
Leduc, J. R.
Phenix Design and Preliminary Studies on 1000-MWe Fast Reactor [71-NE-18] (*A*).....Jl 44
Lee, A. O. deceased.....D 83
Lee, C. H.
Analyses of Axisymmetric Upsetting and Plane-Strain Side-Pressing of Solid Cylinders by the Finite Element Method [70-WA/Prod-4] (*A*) Mr 59
Lee, C. W.
Thermal Stresses in Thick-Walled Circular Cylinders Under Axisymmetric Temperature Distribution [71-PVP-16] (*A*).....Ag 51
Lee, E. H.
Variational Methods for Dispersion Relations and Elastic Properties of Composite Materials [71-APMW-21] (*A*).....N 56
Lee, P. K.
Strain Histories and Strain Distributions in a Cup Drawing Operation [70-WA/Prod-6] (*A*)..Mr 59
Lee, S. Y.
Laboratory Procedures for Evaluating High-Temperature Corrosion Resistance of Gas Turbine Alloys [70-WA/CD-2] (*A*).....Ap 65
Lee, Samuel S.
Boiling-Flow Instabilities in a Cross-Connected Parallel-Channel Upflow System [71-HT-12] (*A*) O 61
Lee, Y. S.
Theoretical Model of Crater Wear [71-Prod-8] (*A*) Jl 49
Legality
Legal and Moral Responsibilities of Engineers Toward Public Safety [70-WA/Av-2] (*A*)..F 68
Legislation
ASME Updates Legislative Policy (*Ed*).....Je 9
Council Policy: Guide to Society [ASME] Legislative Activities.....Je 68
LeGrow, J. V.
Multiplane Balancing of Flexible Rotors—A Method of Calculating Correction Weights [71-Vibr-52] (*A*).....N 52
Lehigh University
Lehigh presents, to Ferdinand P. Beer, the R. R. and E. C. Hillman Award given to the Lehigh faculty member who has done the most toward advancing the university's interests.....S 98
Lehman, T. J.
Simulation of the Dynamics of Machinery [71-Vibr-111] (*A*).....D 55
Lehn, L. L.
A Photoelastic Study of Stress Distribution During Orthogonal Cutting
Part 1: Workpiece Stress Distribution [70-WA/Prod-12] (*A*).....Mr 60
Leidenfrost, W.
Wave Amplitude Study for Two-Phase Flow in a Horizontal Channel [71-FE-2] (*A*).....Ag 54
Leitner, Gordon F. corporate vice-president of Aqua-Chem, appointed to newly established position as advisor, to Aqua-Chem's president, for water pollution and seawater desalting affairs.....S 97
Leman, J. D.
Maintenance of Radioactive Sodium Systems at EBR-II [71-NE-12] (*A*).....Jl 43
Lemieux, P. F.
Variational Method for a Pseudoplastic Fluid in a Laminar Boundary Layer over a Flat Plate [70-WA/APM-39] (*A*).....Je 47
Lemke, D. G.
On the Dynamic Response of Axially Coupled Turborotors [71-Vibr-108] (*A*).....D 54
Lennemann, E.
Measured and Predicted Flow Near the Exit of a Radial-Flow Impeller [71-GT-15] (*A*).....Ag 44
Lenz, E.
Dynamometer for Drilling Force Measurement [71-Prod-7] (*A*).....Jl 49
Leonard, Edward S. named marketing manager of Elliott Co., division of Carrier Corp. ..Je 78
Leopard, A. J.
Thrust Bearings for Power Gas Turbines [71-GT-59] (*A*).....Jl 39
Lessen, Martin receives Fellow ASME certificate.....Ap 86
Leukemia
Blood Pressure via the Ear (*BTR*).....N 37
Leung, Paul receives 1971 ASME Prime Movers Committee Award.....D 74, 75, 80
Leverant, G. R.
Creep of Single Crystal Nickel-Base Superalloy Tubes Under Biaxial Tension [71-APM-1] (*A*) S 55
Levine, H. S.
Axisymmetric Elasticity Solutions of Spherical Shell Segments [70-WA/APM-27] (*A*)....Je 46
Levitation
Experimental Study on the Dynamics of a Gas-Levitated Disk [71-APM-3] (*A*).....S 55
Magnetic Levitation (*NB*).....Je 59
Levy, E. K.
Liquid-Vapor Interactions in a Constant-Area Condensing Ejector [71-FE-21] (*A*).....S 52
Levy, M.
Evaluation of Cardiac Work by Means of the Thermodilution Technique Employing the Thermocatheter [70-WA/Temp-2] (*A*)...My 54
Levy, N.
The Part-Through Surface Crack in an Elastic Plate [71-APM-20] (*A*).....S 56
Levy, Samuel elected Fellow ASME F 103; receives Fellow ASME certificate.....N 91
Lewis, David A. named plant engineer at magnesium metal and chemical production complex being completed at Great Salt Lake in Utah by Magnesium Div. of N L Industries Inc. (formerly, National Lead Co.).....O 90
Lewis, Frank M. receives Capt. Joseph H. Linnard Prize from SNAME.....Ja 105
Liability
AMA Views Consumer Movement at 3-Day Briefing on "Product Liability and Consumerism".....Je 57
Liability Prevention Annual Conference
Second, 1971
Preview (*EN*).....Ap 73
Liao, E. N. K.
Dynamic Response of Cylindrical Shells with Initial Stress and Subjected to General Three-Dimensional Surface Loads [71-APM-12] (*A*) S 56
Liapunov Method
Synthesis by Liapunov's Direct Method [70-WA/Aut-3] (*A*).....F 69
Liberal Arts
Liberal Arts Students Can Benefit from Engineering Ed (*EN*).....Jl 58

Libertiny, G. Z.
Legal and Moral Responsibilities of Engineers Toward Public Safety [70-WA/Av-2] (*A*) . . F 68
Liberty Mutual Research Center
Automobile Bumper Testing with the Liberty Mutual Crash Simulator [71-Vibr-107] (*A*) D 54
Libraries
See Boelter Library; Crerar Library; Engineering Societies Library; United States National Commissions
Licensing
Your Professional License—An Opportunity (*Ed*) O 19
Lichtenstein, Joseph deceased . . . . . Mr 88
Lieberman, P.
Selection of Equations-of-State for Blast Attenuation [70-WA/APM-12] (*A*) . . . . . My 58
Lienhard, J. H.
Influences of Size and Configuration on Cavitation in Submerged Orifice Flows [71-FE-39] (*A*) S 53
Life Raft
On the Contact Problems of Inflated Cylindrical Membranes with a Life Raft as an Example [71-APM-11] (*A*) . . . . . S 56
Life Sciences
Joint Information Project [between U. S. and Yugoslavia] (*NB*) . . . . . D 67
Life Support
See Manned Space Station
Lift, Lifting
Discrete Frequency Noise from Lifting Fans [71-GT-12] (*A*) . . . . . Jl 36
Dynamic Tension Analysis of a Simple Lift System—A Computer Method [71-UnT-7] (*A*) D 47
Fluctuating Lift Forces of the Karman Vortex Streets on Single Circular Cylinders and in Tube Bundles
Part 1: The Vortex Street Geometry of the Single Circular Cylinder [71-Vibr-11] (*A*) . . . . . N 49
Part 2: Lift Forces of Single Cylinders [71-Vibr-12] (*A*) . . . . . N 49
Part 3: Lift Forces in Tube Bundles [71-Vibr-13] (*A*) . . . . . N 48
Lift Jet Engine, JR100 [71-GT-75] (*A*) . . . . . Jl 41
Photo Briefs
Four-Stage Upright; Low-Profile Electric Lift Trucks; Ready for Containerization; Side-loading Lift Truck; Swing Shift Lift Truck; Top Handling Attachment . . . . . Jl 32, 33
Sky-High Lifts (*OS*) . . . . . My 50
Liggett, John V. appointed chief product engineer of Wheel, Drum & Brake Div. of Kelsey-Hayes Co. . . . . Jl 74
Light
The Solid-State Lamp [based on 71-DE-6] . . . . N 22
Solid-State Light Sources [71-DE-6] (*A*) . . . . Jl 45
Lightning
Lightning Protection Approaches for Gas Turbine Controls [71-GT-29] (*A*) . . . . . Jl 37
Likins, P. W.
Measurement of Energy Dissipation in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-4] (*A*) . . . . . S 55
Rigid-Body Approximations to Turbulent Motion in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-Y] (*A*) . . . . . O 60
Lilly, H.
Craniometric Measurements of Human Skulls [70-WA/BHF-8] (*A*) . . . . . Ap 63
Lin, Chi-Wen
Approximate Evaluation of Dynamic Load Factors for Certain Types of Loadings [70-WA/NE-2] (*A*) . . . . . My 55
Lin, Tung Hua elected Fellow ASME . . . . Ag 86
Initial Yield Surface of a Unidirectionally Reinforced Composite [71-APMW-19] (*A*) . . . . . N 56
Lind, N. C.
Experiments on the Plastic Limit Behavior of Shell-Nozzle Junctures Subjected to Nonsymmetric Loading [71-PVP-45] (*A*) . . . . . Ag 53
Linder, Clarence H. reelected full-time president of the National Academy of Engineering for a term of 3 years . . . . . O 90
Lindgren, D. E.
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Design and Performance of High-Pressure Blowoff Silencers [70-WA/Pet-1] (*A*) Ap 54
Lindholm, John C. to spend 1971–1972 academic year at DuPont Co., Newark, Del., taking part in DuPont's year-in-industry program for faculty members of U. S. engineering colleges and schools . . . . . N 89
Lindsey, K. E.
Use of Computers to Aid Corrective Forming of Complex Shapes [71-Prod-10] (*A*) . . . . . Jl 49
Linearity
Free Vibrations of a Linear Structure with Arbitrary Support Conditions [71-APM-6] (*A*) S 55
Linearized Potential Flow Models for Hydrofoils in Supercavitating Flows [71-FE-12] (*A*). Ag 55
A Modified Linear Membrane Theory for the Pressurized Toroid [70-WA/APM-49] (*A*) Je 48
Linkages
See also Peaucellier's Linkage
Application of Direction Cosines to Iterative Displacement Synthesis of a Locked Linkage in Space [70-Mech-78] (*A*) . . . . . Ja 53
Calculating the Response of a Four-Bar Linkage [70-Mech-69] (*A*) . . . . . Ja 52
Closed-Form Displacement Relations of a Five-Link R-R-C-C-R Spatial Mechanism [70-Mech-35] (*A*) . . . . . Ja 49
Coupler Cognates of Eight-Link Mechanisms
Part 1—With Ternary and Quaternary Links [70-Mech-66] (*A*) . . . . . Ja 52
Part 2—With Ternary Links and Double Joints [70-Mech-67] (*A*) . . . . . Ja 52
Design of Four-Bar Linkages Using Interactive Computer Graphics and Synthesis Curves [70-Mech-45] (*A*) . . . . . Ja 50
Determination of Force-Balanced Four-Bar Linkages with Optimum Shaking Moment Characteristics [70-Mech-8] (*A*) . . . . . Ja 46
Dynamic Analysis of Elastic Link Mechanisms by Reduction of Coordinates [71-Vibr-98] (*A*) D 53
Dynamic Stability Analysis of Linkages with Elastic Members via Analog Simulation [70-Mech-48] (*A*) . . . . . Ja 51
Extension of Freudenstein's Equation to Geared Linkages [70-Mech-32] (*A*) . . . . . Ja 49
IMP (Integrated Mechanisms Program), A Computer-Aided Design Analysis System for Mechanisms and Linkage [71-Vibr-80] (*A*) . . . . . D 52
Link Length Bounds on the Four-Bar Chain [70-Mech-62] (*A*) . . . . . Ja 52
Optimization of Spherical Four-Bar Generators [70-Mech-46] (*A*) . . . . . Ja 50
Optimum Design of a Four-Bar Linkage Whose Coupler Path Has Specified Extremes [71-Vibr-109] (*A*) . . . . . D 54
A Proximity Perturbation Method for Linkage Kinematics [70-Mech-4] (*A*) . . . . . Ja 46
Roberts' Cognate of Space Five-Link RHHHH and HHRHH Mechanisms [70-Mech-36] (*A*) . . Ja 49
Spherical Linkage Synthesis Using Stereographic Projection [70-Mech-71] (*A*) . . . . . Ja 52
Synthesis of a Four-Bar Linkage Adjustable for Variable Radius of Curvature of a Coupler Curve [70-Mech-80] (*A*) . . . . . Ja 54
Synthesis of a Geared N-Bar Linkage [70-Mech-24] (*A*) . . . . . Ja 48
Synthesis of Four-Link Space Mechanisms via Extension of Point-Position-Reduction Technique [70-Mech-17] (*A*) . . . . . Ja 47
Synthesis of Six-Link Mechanisms for Simultaneous Coordination of Coupler, Input, and Output Links [70-Mech-57] (*A*) . . . . . Ja 51
Theory of Shaking Moment Optimization of Force-Balanced Four-Bar Linkages [70-Mech-12] (*A*) Ja 47
A Unique Model Set of All RCCC Linkages, Including Mirror-Image Related Linkages [70-Mech-3] (*A*) . . . . . Ja 46
The Use of a Planar Mechanism Synthesis to Produce a Spherical Path Generator Linkage [70-Mech-51] (*A*) . . . . . Ja 51
On the Use of the Undulating Elastica for the Analysis of Flexible Link Mechanisms [70-Mech-33] (*A*) . . . . . Ja 49
Linnell, C. W. deceased . . . . . Ag 87
Linsenmeyer, F. J. deceased . . . . . Jl 78
Linzey, T. J.
Oxygen Recovery for the 90-Day Space Station Simulator Test [71-Av-18] (*A*) . . . . . O 56
Liquefied Natural Gas Industry
Domestic Coal (*NB*) . . . . . D 67
Liquids
The Effect of Liquids on the Dynamic Motions of Immersed Solids [71-Vibr-100] (*A*) . . . . . D 53
An Experimental Investigation of the Enthalpy of Saturated Heavy-Water Liquid [71-HT-M] (*A*) N 59
Fluidic Temperature Control for Liquid-Cooled Space Suits [70-WA/Fls-19] (*A*) . . . . . Je 44
Free-Surface Vibrations of a Magnetic Liquid [71-Vibr-24] (*A*) . . . . . N 50
Heat Transfer to Evaporating Liquid Films [71-HT-H] (*A*) . . . . . N 59
The Liquid Crystal (*BTR*) . . . . . S 42
Liquid Distributions of a Low Pressure Drop Injection System-Gas Turbine "Vaporizer" Design [71-GT-38] (*A*) . . . . . Ag 45
Liquid Filtration Equipment (*OS*) . . . . . S 47
Liquid-Vapor Interactions in a Constant-Area Condensing Ejector [71-FE-21] (*A*) . . . . . S 52
Measurement of Energy Dissipation in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-4] (*A*) . . . . . S 55
Modeling Liquid Pipelines in Transient and Steady State (A Method for Digital Computers) [71-Pet-37] (*A*) . . . . . D 50
Nonlinear Effects in the Collapse of a Nearly Spherical Cavity in a Liquid [71-FE-5] (*A*) Ag 54
The Scattering of Shock Waves by Cylindrical Cavities in Liquids and Solids [70-WA/APM-57] (*A*) . . . . . Je 49
Surface Temperatures and Heat Fluxes Associated with the Evaporation of a Liquid Film on a Semi-Infinite Solid [71-HT-C] (*A*) . . . . . N 58
Velocity Distribution in the Liquid Film During Draining on a Cylindrical Surface [71-APM-J] (*A*) . . . . . O 60
List, H. A.
An Evaluation of Recent Developments in Rail Car Truck Design [71-RR-1] (*A*) . . . . . S 51
Literature
See also Book Reviews; Engineering Societies Library
Advanced Waste Treatment Process Manuals (TL) Ja 67
As the President Sees It
Publication: A User Viewpoint! A Value System? . . . . . My 92
Permanent Interest (*C*) . . . . . Ag 56
Publication of Papers (*C*) . . . . . Jl 51; O 65
ASME Publications Available . . . . . Mr 77; (*Er*) Ap 75; Jl 61; Ag 71; O 77
ASME publishes Supplement to APS-2: Guide for the Control of Emission of Oxides of Sulfur Combustion for Indirect Heat Exchangers . . N 83
ASME Technical Digest . . . . . Ja 42; F 64; Mr 56; Ap 54; My 52; Je 40; Jl 36; Ag 44; S 48; O 54; N 42; D 46
ASME Technical Papers Available . . . Ja 111; F 109
ASME's 1971 BPV Code Available July 1, 1971 Mr 81
Business in the Future—Problems and Opportunities (*TL*)
The Role of Private Enterprise in a Post-Industrial Society
"Education, Technology and Business, A Case Study of Business in the Future—Problems and Opportunities" . . . . . Ag 71
EJC Publishes Profile of Engineering Profession Ag 82
"Engineers of Distinction" a New Directory (*TL*)
"Engineers of Distinction including Scientists in Related Fields" . . . . . F 93
Environmental Jobs to Double by 1980 (*TL*)
"Opportunities in Environmental Careers" S 85
ERC Mandate: Meet Future Energy Needs (*TL*)
"Electric Utilities Industry Research and Development Goals through the Year 2000" N 73
Guide to Gas Piping Systems (*TL*)
ASME's "Guide for Gas Transmission and Distribution Piping Systems" . . . . . Ap 75
Industrial Pollution Control Handbook (*CB*) Ag 57
International Cooperation on Translations (*TL*)
"Translations Register-Index" . . . . . Je 63
Keep Informed (New Equipment, Business Notes, Business Notes, Latest Catalogs) . . . . . Ja 121; F 111; Mr 92; Ap 93; My 96; Je 85; Jl 1; S 105; O 5; N 8; D 105
NASA Tech Briefs
See News
New Catalogs Guide: Latest Industrial Literature Ag 91
New Periodicals and Publications . . . . . Ja 67; F 93; Ap 75; Je 63; Jl 61; S 85; O 77; N 73; D 71
1970 Annual Engineering Index (*TL*)
"Engineering Index Annual for 1970" . . . . . Jl 61
1970 Standards Catalog Offered Free (*TL*)
ANSI publishes 1970 Catalog . . . . . Mr 77
1971 ANSI Standards Catalog (*TL*) . . . . . O 77
Processing Revisions of Specifications in Engineering [71-DE-46] (*A*) . . . . . Ag 47
State Engineering Laws and Board Rules (*TL*)
"Synopsis of State Engineering Registration Laws and Policies and Procedures of State Boards" . . . . . Je 63
The Water Encyclopedia (*TL*)
"Water Encyclopedia" . . . . . D 71
Littlejohn, N. H.
Synthesis of a Four-Bar Linkage Adjustable for Variable Radius of Curvature of a Coupler Curve [70-Mech-80] (*A*) . . . . . Ja 54
Littles, J. Wayne
Skylab Environmental Control and Life Support Systems [71-Av-14] (*A*) . . . . . O 56
Litton Systems
Aero Products Division receives Elmer A. Sperry Award certificate of citation at 1970 WAM Ja 76
Liu, C. K. corecipient at 1970 WAM of National Heat Transfer Conference of 1969 Best Paper Award . . . . . Ja 71
Liu, C. L.
Dynamic Tension Analysis of a Simple Lift System—A Computer Method [71-UnT-7] (*A*) D 47

Liu, H. W.
Local and Gross Deformations in Cracked Metallic Plates and an Engineering Ductile Fracture Analysis [71-PVP-52] (*A*) ..... S 48
Shear Fatigue Crack Propagation and Shear Fracture in a Ductile Steel HY-130 [71-PVP-54] (*A*) ..... S 50
Liu, J. Y.
An Analysis of the Forging of a Flat Ring [70-WA/Prod-28] (*A*) ..... Mr 62
Livingston, C. C.
Operation Arctic ..... F 12
Lloyd, J. R.
Low Reynolds Number Turbulent Flow in Large Aspect Ratio Rectangular Ducts [71-FE-A] (*A*) S 53
Lloyd, R. S.
The Use and Applications of Subatmospheric Pressures in Sterilization Process—Vapor-Phase Sterilization [70-WA/PID-13] (*A*) ..... Mr 64
Loads, Loading
An Analysis Technique for Composite Structures Subject to Dynamic Loads [70-WA/APM-23] (*A*) ..... My 59
Approximate Evaluation of Dynamic Load Factors for Certain Types of Loadings [70-WA/NE-2] (*A*) ..... My 55
The Biomechanics of Torsional Fractures: The Effect of Loading on Ultimate Properties [70-WA/BHF-9] (*A*) ..... Ap 64
Buckling and Postbuckling Behavior of Clamped Shallow Spherical Shells Under Axisymmetric Ring Loads [71-APM-9] (*A*) ..... S 56
Computer-Aided Study of Journal Bearing Performance Under Cyclic Loads:
Part I—Theory [71-Vibr-86] (*A*) ..... N 54
Part II—Applications [71-Vibr-87] (*A*) ..... N 54
Curtis Bay's New Ship-Barge Loader [70-WA/MH-4] (*A*) ..... My 54
Determination of the Unloading Boundary in Longitudinal Elastic-Plastic Stress Wave Propagation [71-APM-15] (*A*) ..... S 56
Dynamic Loads on Spur Gear Teeth by Analog Computation [71-DE-26] (*A*) ..... Jl 46
The Dynamic Response of Blast Shields and Barricades to Impulsive Loadings [71-PVP-48] (*A*) ..... S 48
Dynamic Response of Cylindrical Shells with Initial Stress and Subjected to General Three-Dimensional Surface Loads [71-APM-12] (*A*) S 56
The Effect of Initial Imperfections on the Buckling Load of Shallow Circular Arches [71-APMW-13] (*A*) ..... N 56
Experimental Determinations of Plastic Collapse Loads for Pipe Elbows [71-PVP-37] (*A*) ..... Ag 53
An Experimental Evaluation of Plasticity Theories for Anisotropic Metals [70-WA/APM-17] (*A*) My 58
Experiments on the Plastic Limit Behavior of Shell-Nozzle Junctures Subjected to Nonsymmetric Loading [71-PVP-45] (*A*) ..... Ag 53
Fluid Rheological Effects in Sliding Elastohydrodynamic Point Contacts with Transient Loading
1—Film Thickness [70-Lub-21] (*A*) ..... Ja 45
2—Traction [70-Lub-22] (*A*) ..... Ja 45
Gas-Turbine Loading Schedule for Maximum Life of the Hot Gas Path Components [70-WA/GT-2] (*A*) ..... My 56
Gear Design: Dynamic Loads [based on 71-DE-1] O 29
Dynamic Loads on Gear Teeth, Design Applications [71-DE-1] (*A*) ..... Jl 44
The Hodograph Transformation in Plastic Waves with Discontinuous Loading Conditions [71-APMW-12] (*A*) ..... N 55
Initial Yield Surface of a Unidirectionally Reinforced Composite [71-APMW-19] (*A*) ..... N 56
Limit Analysis for Combined Edge and Pressure Loading on a Cylindrical Shell [71-PVP-22] (*A*) Ag 52
The Loading Frequency Relationship in Multiple Eigenvalue Problems [71-APM-13] (*A*) ..... S 56
Minimum Squeeze Film Thickness in a Periodically Loaded Journal Bearing [70-Lub-12] (*A*) ..... Ja 43
A New Method for the Calculations of Blade Loadings in a Radial Flow Compressor [71-GT-60] (*A*) ..... Jl 39
Optimum Damping and Stiffness in a Nonlinear Four-Degree-of-Freedom System Subject to Shock Load [70-WA/APM-18] (*A*) ..... My 58
On the Plane Elastostatic Problem of a Loaded Crack Terminating at a Material Interface [71-APM-O] (*A*) ..... O 59
Prediction of Loads and Stresses in Closed-Die Forging [70-WA/Prod-8] (*A*) ..... Mr 60
The Prediction of Press Loads in Deep Drawing Titanium 6 Al 4V, Stainless Steel AISI 304, and Inconel X Alloys at Various Conditions of Lubrication at Elevated Temperatures [70-WA/Prod-26] (*A*) ..... Mr 63
On the Relationship Between Plastic Shakedown and the Repeated Loading of Creep Structures [71-APM-C] (*A*) ..... O 59
Response Bounds for Columns with Transient Loads [70-WA/APM-32] (*A*) ..... Je 47
Response of a Semi-Infinite Elastic Solid to an Arbitrary Line Load Along the Axis [71-APMW-1] (*A*) ..... N 55
Semimembrane Analysis of Cylindrical Shells Subjected to Wind Loading [70-WA/APM-7] (*A*) ..... My 57
Shakedown in Elastic-Plastic Systems Under Dynamic Loadings [71-APMW-27] (*A*) ..... N 56
Sideloading Life Truck (*PB*) ..... Jl 33
Stress Resultants and Out-of-Plane Deformations in Stiff Rings Attached to Elastic Cylinders and Subject to Concentrated Loads [70-WA/PVP-1] (*A*) ..... F 76
Stresses in Multilayered Structures Under High-Rate Pressure Loads [70-WA/UnT-14] (*A*) Je 46
Study of Rim Stresses Resulting from Static Loads on Different 36-Inch Railroad Wheel Designs [71-RR-4] (*A*) ..... S 51
A Theoretical Approach to Creep Deformation During Intermittent Load [71-Met-F] (*A*) Ag 48
Lobes
Basic Geometric Methods in Helical Lobe Compressor Design [70-WA/FE-23] (*A*) ..... F 74
Stability and Transient Motion of a Vertical Three-Lobe Bearing System [71-Vibr-76] (*A*) ..... D 52
Lock, G. S. H. appointed chairman of the Associate Committee on Heat Transfer of the National Research Council of Canada for a 3-year term ..... O 90
Locke, Frank S.
Design of an Effective Work-Order System [71-DE-10] (*A*) ..... Jl 45
Locking
Application of Direction Cosines to Iterative Displacement Synthesis of a Locked Linkage in Space [70-Mech-78] (*A*) ..... Ja 53
Locomotives
The Santa Fe Railway Locomotive Simulator and Coordinated Engineer's Training Program [71-RR-3] (*A*) ..... S 51
Statistical Analysis of Adhesion Performance of Locomotives [70-WA/RR-8] (*A*) ..... Je 42
Survey Committee Report, 1969–1970
Progress in Railway Mechanical Engineering
Part I: Locomotives [70-WA/RR-9] (*A*) Je 41
Part II: Cars and Equipment [70-WA/RR-10] (*A*) ..... Je 41
Lodge, Edmund A. deceased ..... Mr 88
Loeber, Norman C. studying Computer Braille terminal system (*BTR*) ..... Ag 38
Loft, A.
The Two-Shaft Industrial Gas Turbine Goes to Sea—Again [71-GT-68] (*A*) ..... Jl 40
Logic
Automatic Checkout of Complex Modules [71-Vibr-115] (*A*) ..... D 55
Lomacky, O.
Fatigue and Fracture Reliability Analysis of Pressure Vessels [71-PVP-47] (*A*) ..... S 48
Stress Analysis of Thin Elasto-Plastic Shells [70-WA/PVP-3] (*A*) ..... F 76
Lombardo, S.
2750 Deg F Engine Test of a Transpiration Air-Cooled Turbine [70-WA/GT-1] (*A*) ..... My 56
London, A. L.
Influence of Brazing on Very Compact Heat-Exchanger Surfaces [71-HT-29] (*A*) ..... O 63
Long, C. H.
How Will We Meet the Demand for Electrical Power in 1980? [70-WA/Fu-3] (*A*) ..... F 75
Loo, T. C.
Forced Vibration of a Beam with Time-Dependent Boundary Condition [71-Vibr-32] (*A*) ..... N 50
Loops
Eight-Link Coupler Mechanism with Two Parallelogram Loops [70-Mech-52] (*A*) ..... Ja 51
Lorah, L. D.
Infrared Spectrophotometry as a Quality Control Tool [71-DE-44] (*A*) ..... Ag 47
Lorenzini, Robert A. elected Fellow ASME D 81
Los Angeles
Fresh Water to L. A. (*NB*) ..... Je 58
Loss
The Use of Flow Modeling Techniques to Obtain a Minimum Loss Design for the Stack Entrance Section of a 700-ft Power Plant Chimney [70-WA/Pwr-1] (*A*) ..... My 55
Loss, F. J.
Analysis of Radiation-Induced Embrittlement Gradients on Fracture Characteristics of Thick-Walled Pressure Vessel Steels [71-PVP-7] (*A*) Ag 50
A Reassessment of Fracture-Safe Operating Criteria for Reactor Vessel Steels Based on Charpy-V Performance [70-WA/Met-1] (*A*) ..... My 52
Lou, Y. K.
Dynamics of a Submerged Ring-Stiffened Spherical Shell [70-WA/APM-42] (*A*) ..... Je 47
Louvers
See Manned Space Station
Lovelace, W. S.
Study of Rim Stresses Resulting from Static Loads on Different 36-Inch Railroad Wheel Designs [71-RR-4] (*A*) ..... S 51
Lowen, G. G.
Determination of Force-Balanced Four-Bar Linkages with Optimum Shaking Moment Characteristics [70-Mech-8] (*A*) ..... Ja 46
Theory of Shaking Moment Optimization of Force-Balanced Four-Bar Linkages [70-Mech-12] (*A*) Ja 47
Lowery, J. H., Jr.
Olin's Five-Year Experience in Gas Turbine Operation [71-GT-64] (*A*) ..... Jl 39
Lozano, E. R.
Operational Logistics in an Air Pollution Monitoring Network [70-WA/PTC-3] (*A*) ..... My 52
Lu, Y. P.
Transient Interaction of Spherical Acoustic Waves and a Spherical Elastic Shell [70-WA/APM-29] (*A*) ..... Je 46
Lubard, S. C.
The Turbulent Boundary Layer with Mass Transfer and Pressure Gradient [71-APM-2] (*A*) S 55
Lubricants, Lubrication
See also Collisions; Porosity; Rings
Air-Dry PTFE Gets "No Wear" (*BTR*) ..... S 38
Analysis of Pumping Rings [70-Lub-4] (*A*) ..... Ja 42
A Comparison of the Frictional Losses in Hydrostatic and Conventional Extrusion Processes with Hydrodynamic Lubrication [70-Lub-26] (*A*) ..... Ja 45
Gas-Engine Oil Ash and Viscosity Limits—The Supplier's Dilemma [71-DGP-10] (*A*) ..... Ag 49
High-Speed Ice Train [based on 70-WA/RR-3] Je 14
High-Speed Ice Train (*C*) ..... Ag 57
Coefficient of Friction of Ice at High Speed—Application to a High Speed Train [70-WA/RR-3] (*A*) ..... Je 42
Hydrodynamic Lubrication in Rolling of Thin Strips [71-Prod-2] (*A*) ..... Jl 48
The Influence of EHD Lubrication on Rolling Bearing Selection and Design [71-DE-3] (*A*) Jl 44
Inhibition of Water-Accelerated Rolling-Contact Fatigue [70-Lub-9] (*A*) ..... Ja 42
Lubricant and Ball Steel Effects on Fatigue Life [70-Lub-16] (*A*) ..... Ja 44
Lubricant for the "Wear-In" (*BTR*) ..... Mr 50
Lubrication Theory for Micropolar Fluids [71-APM-N] (*A*) ..... O 59
Measurement of the Dynamic Characteristics of a Large Sleeve Bearing [70-Lub-14] (*A*) ..... Ja 44
Nonlinear Response of Gas-Lubricated Shrouded Rayleigh-Step Thrust Pad [71-Vibr-75] (*A*) D 52
The Prediction of Press Loads in Deep Drawing Titanium 6 Al 4V, Stainless Steel AISI 304, and Inconel X Alloys at Various Conditions of Lubrication at Elevated Temperatures [70-WA/Prod-26] (*A*) ..... Mr 63
A Rating Formula for Fine Pitch Boundary Lubricated Gears [70-Mech-63] (*A*) ..... Ja 52
Speed Effects in Forging Lubrication [70-Lub-11] (*A*) ..... Ja 42
Taking the Systems Approach to Lubricating Machines [71-DE-49] (*A*) ..... Ag 47
A Theoretical Study of the Dynamic Behavior of Foil Bearings [70-Lub-5] (*A*) ..... Ja 42
Tires and Roads [based on 69-Lub-20]
Credit Where Due (*C*) (*AC*) ..... Mr 66
270-Ton Lube Tube (*PB*) ..... Ja 38
Victory Seal (*BTR*) ..... Ja 33
Visual Observations and Torque Measurements in the Taylor Vortex Regime Between Eccentric Rotating Cylinders [70-Lub-13] (*A*) ..... Ja 43
Lucero, A. S.
Analysis of Trace Contaminants [71-Av-17] (*A*) O 56
Luchter, Stephen
Identifying the Engineer (*C*) ..... Ap 66
Luco, J. E.
Dynamic Response of a Rigid Footing Bonded to an Elastic Half Space [71-APMW-15] (*A*) ..... N 56
Ludema, K. C.
Tires and Roads [based on 60-Lub-20]
Credit Where Due (*C*) (*AC*) ..... Mr 66
Luepkes, William R. joins technical staff of Pioneer Service & Engineering Co., Chicago-based consulting firm F 101; establishes own consulting firm, Controlled Environmental Research Co., in Des Plaines, Ill. ..... S 98
Luk, W. K.
A System of Specification of Lathe Tool Nomenclature [70-WA/Prod-22] (*A*) ..... Mr 62

Lumsdaine, E.
Effect of Normal Shock on Turbulent Boundary-Layer Parameters [71-FE-16] (*A*).....Ag 55
Lunar Roving Vehicles
See Vehicles, Lunar
Lunar Technology
Fiber Risers (*PB*).....Ap 50
Lunar Dead Reckoning (*BTR*).....Jl 25
Man-Made Lunar Explosions (*BTR*).....F 56
Spectral Emittance of Apollo 12 Lunar Fines [71-HT-21] (*A*).....O 62
Lunchick, M. E.
The Influence of Residual Stresses on the Collapse Pressure of Cold Pressed Spherical Shells [70-WA/UnT-1] (*A*).....Je 45
Lund, Herbert F. to serve as seminar chairman for U. S. Department of Commerce Plant Engineering and Maintenance Technical Seminar in Bangkok, Kuala Lumpur, and Singapore, September 22-October 4, 1971 S 97
(*editor*) Industrial Pollution Control Handbook (*CB*).....Ag 57
Ten Years' Progress in Management, 1960–1970
II: Management's Social Responsibilities
A Philosophy of Industrial Air Pollution Control [70-WA/Mgt-11] (*A*).....Mr 57
Lund, J. W.
Analysis and Experiments on Multi-Plane Balancing of a Flexible Rotor [71-Vibr-74] (*A*)..D 52
Lundbye, A. E. deceased.....O 91
Lunde, Thomas T. elected Fellow ASME..N 90
Lyford, F. E.
He Likes Us! (*C*).....Je 52
Lyle, F. F., Jr.
Investigation of Cracking in Nuclear Reactor Primary Piping System [71-PVP-33] (*A*)..Ag 53
Lynn, W. R.
Sensor for the Control of Vehicular Gas Turbine Combustors [71-GT-63] (*A*).....Jl 39
Lyon, R. H.
Noise Abatement in Industry
Interaction of Sound and Structures
Application of a Disorder Measure to Acoustical and Structural Models [70-WA/DE-1] (*A*).....F 65, Ap 55

M

Ma, B. M.
Creep Stress Distribution in Long, Cylindrical Reactor Pressure Vessels [71-PVP-29] (*A*) Ag 52
Mabie, H. H.
Velocity and Acceleration Synthesis of Four-Bar Mechanisms by Curve Matching [70-Mech-42] (*A*).....Ja 50
Mach Numbers
Some Results on the Heat Transfer Within Resonant Cavities at Subsonic and Supersonic Mach Numbers [71-FE-9] (*A*).....Ag 54
Machell, Arthur R., Jr. elected Vice-President, ASME Codes and Standards Policy Board 1972–1974.....N 86
Machinability
See Machining
Machine Design Award
See Honors
Machine Tools
See also Tools
Automatic Planning of Optimal Metal-Cutting Operation and Its Effect on Machine-Tool Design [70-WA/Prod-14] (*A*).....Mr 60
Carriage-Rail Assembly for High-Resolution Mechanical Positioning (*NTB*).....D 38
Numerically Controlled Machine Tools (*OS*) Ja 41
The Static and Dynamic Behavior of Warren Type Machine Tool Structural Elements [70-WA/Prod-7] (*A*).....Mr 60
Machines, Machinery
Control of Machines by Conversational Speech [71-DE-7] (*A*).....Jl 45
The Coupled Bending-Bending Vibration of Pre-Twisted Tapered Blading [71-Vibr-78] (*A*) D 52
Dynamic Analysis of Elastic Link Mechanisms by Reduction of Coordinates [71-Vibr-98] (*A*) D 53
Dynamic Shock Phenomena in Rolling Mills [71-Vibr-95] (*A*).....D 53
Identification of Failing Mechanisms Through Vibration Analysis [71-Vibr-90] (*A*).....N 54
Keys to Developing Machines with High-Level Artificial Intelligence [71-DE-21] (*A*).....Jl 46
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industry
Machinery Noise May Indicate Loss of Efficiency and Severity of Dynamic Stresses [70-WA/Pet-2] (*A*).....Ap 55
The Octave Band Vibration Analyser as a Machinery Defect Indicator [71-DE-47] (*A*).....Ag 47
Polydyne Cam Mechanisms for Typehead Positioning [71-Vibr-97] (*A*).....N 54
Predicting Machine Failure (*BTR*).....Ag 39
Simulation of the Dynamics of Machinery [71-Vibr-111] (*A*).....D 55
Surge Waves in Stranded Springs [71-Vibr-94] (*A*) D 53
Taking the Systems Approach to Lubricating Machines [71-DE-49] (*A*).....Ag 47
Torsional Response of a Gear Train System [71-Vibr-77] (*A*).....D 52
Transient Torsional Vibration Due to Suddenly Applied Torque [71-Vibr-99] (*A*).....D 53
Machining
Big Bore (*PB*).....O 50
Cold-Machining—An Investigation of the Mechanics of Metal Cutting as Affected by the Workpiece Temperature in the Sub-Zero Range [70-WA/Prod-24] (*A*).....Mr 62
EDM-Machined Combustion Chamber (*BTR*) Jl 26
Evaluation of Machinability and Machining Parameters of Cold Formed Steel Parts [71-DE-42] (*A*).....Ag 46
Mechanics of Tool-Workpiece Engagement and Incipient Deformation in Machining of 70/30 Brass [71-Prod-4] (*A*).....Jl 48
Optimization of Multistage Machining System: Analysis of Optimal Machining Conditions for the Flow-Type Machining System [70-WA/Prod-15] (*A*).....Mr 61
Optimization of the Constrained Machining Economics Problem by Geometric Programming [71-Prod-9] (*A*).....Jl 49
Plastic Flow at the Chip-Tool Interface During Hot Machining [70-WA/Prod-1] (*A*).....Mr 59
Stochastic Model for Machining Processes—Optimal Decision-Making and Control [70-WA/Prod-20] (*A*).....Mr 62
A Study of Plunge (or Form) Machining of Low-Carbon Resulfurized Steel on a Multispindle Automatic Screw Machine
Part 1: Influence of Speed, Feed, and Ingot Variation on Diameter Increase and Surface Finish in Prolonged Machining [70-WA/Prod-18] (*A*).....Mr 61
Part 2: Influence of Speed, Feed, and Duration of Cutting on Worn Tool Geometry [70-WA/Prod-19] (*A*).....Mr 62
Thermal Effects in Precision Machining [based on 70-WA/Prod-25].....Jl 11
Thermal Effects in Precision Machining [70-WA/Prod-25] (*A*).....Mr 62
Whirling Dervish (*PB*).....S 44, 45
Mackey (Guerard) Best Paper Award
See Honors
Maclin, Ernest appointed director of analytical systems for Electro-Nucleonics, Inc., Fairfield, N. J.....Ap 85
MacMillan, J. I.
Economics of Remote Data Processing for Oil and Gas Production [71-Pet-39] (*A*).....D 51
Maddne, B. C., Jr.
Expanded-Sphere Sandwich Structure [70-WA/UnT-7] (*A*).....Je 46
Mader, P. P.
Analysis of Trace Contaminants [71-Av-17] (*A*) O 56
Madison, Wisconsin
Madison Engineering Council Operations in Full Swing.....N 83
Mager, T. R.
Use of Fracture Mechanics in Reactor Vessel Surveillance [70-WA/Met-3] (*A*).....My 52
MAGNECOL
Sea Brooms (*BTR*).....O 46
Magnetics
Engineering a Better Environment
2: High-Speed Interurban Transportation Systems
Fast Transit Link [based on 69-WA/PID-11] Fast Transit Link (*C*) (*D*) (*AC*).....Mr 66
Free-Surface Vibrations of a Magnetic Liquid [71-Vibr-24] (*A*).....N 50
Magnetic Levitation (*NB*).....Je 59
Supermagnetic Performance (*BTR*).....O 48
Magnetohydrodynamics
Corrosion of Heat-Exchange Tubes in a Simulated Coal-Fired MHD System [70-WA/CD-3] (*A*) Ap 64
Entrance Development of the Weakly Interacted MHD Plane Channel Flow as Affected by Wall Conductances [71-APM-A] (*A*).....O 59
The Influence of Wall Conductance on Performance of the MHD Hydrostatic Thrust Bearing [70-Lub-1] (*A*).....Ja 42
Maguire, John J. president of Betz Laboratories, Inc., dedicates W. H. and L. D. Betz Research Center.....Je 77
Maher, J. B. appointed assistant chief engineer of Chicago Bridge & Iron Co. and headquartered at firm's staff offices in Oak Brook, Ill.....Ag 85
Maher, Robert L.
Metrication (*C*).....S 58
Mahig, J.
Minimisation of Mechanism Oscillations Through Flywheel Tuning [70-Mech-15] (*A*).....Ja 47
Spring and Follower Characteristics Due to Internal Damping and Cam Actuation [70-Mech-76] (*A*).....Ja 53
Theory for the Determination of Flutter Speed of a Class of Hydrofoils [71-Vibr-19] (*A*).....N 49
Mahmoodi, P.
Evaluation of Structural Dampers Under Linear or Sinusoidal Displacement Control [71-Vibr-46] (*A*).....N 52
Main (Charles T.) Award
See Contests; Honors
Maintenance
Engineering a Better Environment
3: Building a Pollution-Free Steel Plant..Ja 25
6: Industrial Noise Control—Past, Present, and Future [based on 70-PEM-29].....Ap 29
For Plant Management: Corrosion-Control Techniques [based on 70-PEM-23].....Ja 10
Operation Arctic.....F 12
Operation Arctic (*C*).....Ap 68; S 60
Programmed Preventive Maintenance—Its Application to Oil Field Operation [71-Pet-10] (*A*) D 48
Tip-Top Service (*PB*).....S 44, 45
Maison, J. R.
Behavioral and Stress Analysis of the NEMO Type Acrylic Hulls [70-WA/UnT-8] (*A*)..Je 45
Malik, M. A. S. ✤
Digital Simulation of Nocturnal Production of a Solar Still [70-WA/Sol-6] (*A*).....F 65
Mallick, R. W. deceased.....S 99
Malvern, L. E.
Elastic-Plastic Plane Waves with Combined Compressive and Two Shear Stresses in a Half Space [71-APM-10] (*A*).....S 56
Management
Boon for Management: Computerized Die Design S 21
Design of an Effective Work-Order System [71-DE-10] (*A*).....Jl 45
Executive Market (*NB*).....D 66
For Plant Management: Corrosion-Control Techniques [based on 70-PEM-23].....Ja 10
Ten Years' Progress in Management, 1960–1970
Foreword (*A*).....Mr 56
I: Management, An Appraisal and Overview
Beyond Salary—Executive Compensation Past and Present [70-WA/Mgt-1] (*A*).....Mr 56
Education and Training for the Profession of Management 1960–1970 [70-WA/Mgt-9] (*A*).....Mr 56
Managerial Progress in the Sixties—Some Summary Reactions [70-WA/Mgt-10] (*A*) Mr 57
II: Management's Social Responsibilities
The Engineer's Responsibility for Product Safety [70-WA/Mgt-3] (*A*).....Mr 57
A Philosophy of Industrial Air Pollution Control [70-WA/Mgt-11] (*A*).....Mr 57
The Price of Success—Management Leadership in a Pluralistic Society [70-WA/Mgt-14] (*A*).....Mr 57
The Utilization of Engineers in Industry [70-WA/Mgt-12] (*A*).....Mr 57
III: General and Operations Management
A Concept of a Plan [70-WA/Mgt-4] (*A*) Mr 58
Long-Range and Strategic Planning—Its History and Its Future [70-WA/Mgt-2] (*A*) Mr 58
Physical Distribution—A New Dimension of Management Control [70-WA/Mgt-13] (*A*) Mr 58
Placing the Management of Defense and Space Programs in Perspective [70-WA/Mgt-5] (*A*).....Mr 58
IV: Management Education
Continuing Management Education in the Universities [70-WA/Mgt-6] (*A*).....Mr 58
Dilemmas for Business Education in the 1970's [70-WA/Mgt-8] (*A*).....Mr 58
Management Education—Industrial, 1960–1969 [70-WA/Mgt-7] (*A*).....Mr 58
The Transition Requirements from Engineer to Entrepreneur—Where Management Goes Wrong [71-DE-24] (*A*).....Jl 46
Mandel, Mortimer B., Jr. deceased.....Mr 88
Mandell, David A.
Radiative Energy Transfer Within a Nonisothermal Air Plasma [71-HT-G] (*A*).....N 58
Mangan, J. L.
Russia's 100-MW Gas Turbine [based on 70-GT-30] Russia's 100-MW Gas Turbine (*C*) (*D*)...Ja 56

Mangiapane, J. A.
Development of Borsic-Aluminum Composite Fan Blades for Supersonic Turbofan Engines [71-GT-90] (*A*) ..... Jl 42
Manifolds
Effect of Manifold Tuning on Performance of Engines [71-Vibr-104] (*A*) ..... D 54
Manipulators
Coordinated Motion Control of Prosthetic Arms and Remote Manipulators [70-Mech-75] (*A*) Ja 53
Manjoine, M. J.
Analysis of Stresses in Pressurized Welded Pipe in the Creep Range [71-PVP-66] (*A*) ..... S 50
Mann, Robert W.
Computer Braille (*C*) ..... O 66
MANNED SPACE STATION
Environmental Control and Life Support Systems
EC/LS System Configurations for Spacecraft
Skylab Environmental Control and Life Support Systems [71-Av-14] (*A*) ..... O 56
Space Shuttle Environmental Control and Life Support System [71-Av-16] (*A*) ..... O 56
Space Shuttle Orbiter Environmental Control and Life Support Systems [71-Av-15] (*A*) ..... O 56
Space Station
Life-Support System Design for a 12-Man Solar-Array Space Station [71-Av-12] (*A*) ..... O 55
Space Station Life Support System Definition [71-Av-13] (*A*) ..... O 55
System Features of a Space Station Prototype Environmental/Thermal Control and Life Support System [71-Av-22] (*A*) ..... O 56
EC Advanced Subsystems
Concentrating Systems
Electrochemical Carbon Dioxide Concentrating System [71-Av-21] (*A*) ..... O 56
Hydrogen Depolarized Cell for a CO_2 Concentrator [71-Av-37] (*A*) ..... O 58
Contaminant Control
Design of a Spacecraft Contaminant Control System [71-Av-19] (*A*) ..... O 56
Oxygen Systems
Design and Performance of a Solid Electrolyte Oxygen Generator Test Module [71-Av-8] (*A*) O 55
180-Day Life Test of Solid Electrolyte System for Oxygen Regeneration [71-Av-32] (*A*) ..... O 57
Portable Life Support
Advanced Regenerative Portable Life Support System for Extravehicular Activity [71-Av-10] (*A*) ..... O 55
Regenerative Life Support System: 90-Day Manned Test
Analysis of Trace Contaminants [71-Av-17] (*A*) O 56
Life-Support System Operational and Maintenance Data for the 90-Day Space Station Simulator Test [71-Av-3] (*A*) ..... O 55
Overview of a 90-Day Manned Test in a Space Station Simulator [71-Av-38] (*A*) ..... O 58
Oxygen Recovery for the 90-Day Space Station Simulator Test [71-Av-18] (*A*) ..... O 56
Waste Management for the 90-Day Space Station Simulator Test [71-Av-7] (*A*) ..... O 55
Water Management Results for a 90-Day Space Station Simulator Test [71-Av-6] (*A*) ..... O 55
Thermal Control
Heat Pipes
Characteristics of Six Novel Heat Pipes for Thermal Control Applications [71-Av-29] (*A*) ..... O 57
Experimental High Performance Heat Pipes for the OAO-C Spacecraft [71-Av-26] (*A*) ..... O 57
Transient Performance of Electrical Feedback-Controlled Variable-Conductance Heat Pipes [71-Av-27] (*A*) ..... O 57
Louvers
Frictionless Bimetal-Actuated Louver System [71-Av-39] (*A*) ..... O 58
Radiators
Spaceborne Passive Radiators for Detector Cooling [71-Av-30] (*A*) ..... O 57
Wide Heat Load Range Space Radiator Development [71-Av-5] (*A*) ..... O 55
Satellites
Thermal Control of ATS F & G [71-Av-28] (*A*) O 57
Thermal Design and Evaluation of the ITOS-1 Spacecraft [71-Av-23] (*A*) ..... O 56
Three-Day Mission Biosatellite Thermal Control System Design and Flight Performance [71-Av-33] (*A*) ..... O 58
Surfaces
Suitability of Metalized FEP Teflon as a Spacecraft Thermal Control Surface [71-Av-35] (*A*) O 58
Thermal Control Systems
Computer Simulation of the Environmental/Thermal Control and Life-Support System for the Space Station Prototype [71-Av-34] (*A*) O 58
Thermal Control Systems Design for Space Station [71-Av-36] (*A*) ..... O 58
Water Electrolysis Systems
Circulating Electrolyte
Status of the LM8C Circulating Electrolyte Water Electrolysis System [71-Av-20] (*A*) ..... O 56
Solid Polymer Electrolyte
General Electric Company Solid Polymer Electrolyte Water Electrolysis System [71-Av-9] (*A*) O 55
Static Feed
Status of the Life Systems' Static Feed Water Electrolysis System [71-Av-25] (*A*) ..... O 57
Water Recovery Systems
Application of Reverse Osmosis to Wash Water Recovery for Manned Space Flights [71-Av-1] (*A*) ..... O 54
Development of a Prototype Vapor Diffusion Water Reclamation System [71-Av-31] (*A*) O 56
Development of a Zero-Gravity Whole Body Shower [71-Av-2] (*A*) ..... O 54
Integrated Waste Management-Water System Using Radioisotopes for Thermal Energy [71-Av-4] (*A*) ..... O 55
Water Reclamation from Urine by Electrolysis-Electrodialysis [71-Av-11] (*A*) ..... O 55
Water-Vapor
Development Status of the Water Vapor Electrolysis System [71-Av-24] (*A*) ..... O 57
Manning, G. B.
The Performance of the TCS 670-B Turbine in the Closed Cycle Test Facility at Fort Belvoir, Virginia [71-GT-52] (*A*) ..... Jl 39
Manos, W. P.
ASME Survey Committee Report, 1969–1970 Progress in Railway Mechanical Engineering Part II: Cars and Equipment [70-WA/RR-10] (*A*) ..... Je 41
Mansfield, E. B.
Your Professional License—An Opportunity (*Ed*) O 19
Mansour, W. M.
Analog and Digital Analysis and Synthesis of Oscillatory Tracks [71-Vibr-113] (*A*) ..... D 55
The Method of Residues for the Synthesis of Coupler Curve Generating Mechanisms [70-Mech-53] (*A*) ..... Ja 51
A Proximity Perturbation Method for Linkage Kinematics [70-Mech-4] (*A*) ..... Ja 46
Manufacturing
An Analytical Model Predicting Fixed Index Assembly Machine Performance [71-Vibr-63] (*A*) ..... N 53
Capital Spending
The General Picture [1971 outlook] (*NR*) ..... F 89
Coordinating Work of Manufacturing Engineering with Design Engineering [71-DE-40] (*A*) ..... Ag 46
Results of Experiments for Determining the Influence of Blade Profile Changes and Manufacturing Tolerances on the Efficiency, the Enthalpy Drop, and the Mass Flow of Multi-Stage Axial Turbines [70-WA/GT-4] (*A*) My 56
Some Tentative Weibullian Descriptions of the Properties of Steels, Aluminums, and Titaniums [71-Vibr-64] (*A*) ..... N 53
MAPRC
See Middle Atlantic Power Research Committee
Maraging
Elevated Temperature Properties of Maraging Steel Plates and Welds [71-Met-E] (*A*) ..... Ag 48
Marchant, D.
Performance of Compressor Blade Rows in a Sloping Flowpath [71-GT-13] (*A*) ..... Jl 36
Marchant One
Mini-Sized Calculator (*BTR*) ..... F 53
Marco, S. M.
Friction-Instability: A New Design Parameter for Brakes [71-DE-K] (*A*) ..... Jl 48
Noise Abatement in Industry
Gas Turbine Noise Abatement
On the Noise from Jet Diffusers [70-WA/GT-5] (*A*) ..... Ap 56
Margolies, Roydon S.
Identifying the Engineer (*C*) ..... Ap 66
Mariculture (Fish Farming)
Power in the Year 2001
Part 2—Thermal Sea Power ..... O 21
Marinas
Marinas Fight Pollution (*BTR*) ..... S 37
Marine Engineering
ASME Panel Examines Progress and Current Needs in Gas Turbine Codes and Standards Ap 77
The Cost Effectiveness of Natural and Synthetic Fiber Ropes in the Marine Environment [70-WA/UnT-9] (*A*) ..... Je 46
Marine Installation of a Gas Fired Turbine for Cryogenic Gas Processing [71-GT-28] (*A*) Jl 36
Reverse Reduction Marine Drives for High Powered Gas Turbines [71-GT-82] (*A*) ..... Jl 41
Marino, John A.
Growth ≠ Progress? (*C*) ..... Je 52
Markert, William L. deceased ..... Mr 88
Marketing
AMA Views Consumer Movement at 3-Day Briefing on "Product Liability and Consumerism" ..... Je 57
Markho, P. H.
Visual Observations and Torque Measurements in the Taylor Vortex Regime Between Eccentric Rotating Cylinders [70-Lub-13] (*A*) ..... Ja 43
Markolf, K. L.
The Dynamic Characteristics of the Human Intervertebral Joint [70-WA/BHF-6] (*A*) ..... Ap 63
Marlotte, R. B. deceased ..... N 93
Marlowe, Donald E. (*reviewer*)
"The Revolt of the Engineers: Social Responsibility and the American Engineering Profession" (*BR*) ..... O 66
Maros, Desideriu
Contributions to the Determination of the Equations of Motion for Multidegree of Freedom Systems [70-Mech-29] (*A*) ..... Ja 48
Marriott, Partick W.
Fast Transit Link (*C*) (*D*) ..... Mr 66
Marshall, Donald T. appointed vice-president, Airco Industrial Gases Div. of Air Reduction Co., Inc., working on various special assignments reporting directly to the division president ..... Ap 85
Marshall, M. G.
ASME Survey Committee Report, 1969–1970 Progress in Railway Mechanical Engineering Part II: Cars and Equipment [70-WA/RR-10] (*A*) ..... Je 41
Marshall Industries
Dynamic Science Div.
Crash Test (*NB*) ..... N 69
Martin, B.
The Investigation of Bone's Substructure Using Megahertz Sound and a Porous Model [70-WA/BHF-11] (*A*) ..... Ap 63
Martino, A. A.
Designing Rotor Burst Protection [71-GT-70] (*A*) Jl 40
Martzolff, Clement L. appointed project manager of new Air Pollution Control Department of American-Standard's Industrial Products Division ..... Mr 84
Mashimo, T.
Effects of Reynolds Number on Performance Characteristics of a Centrifugal Compressor [71-GT-25] (*A*) ..... Jl 36
Masking
Photofabrication of Metal Parts [based on 71-DE-32 ..... N 19
Photofabrication of Metal Parts [71-DE-32] (*A*) Jl 47
Masri, H. E. deceased ..... Ag 87
Masri, S. F.
Theory of the Dynamic Vibration Neutralizer with Motion-Limiting Stops [71-APMW-14] (*A*) N 56
Mass Distribution
Distribution of Mass, Velocity, and Intensity of Turbulence in a Two-Phase Turbulent Jet [70-WA/APM-45] (*A*) ..... Je 48
Mass Transfer
On Acoustic Propagation and Critical Mass Flux in Two-Phase Flow [71-HT-K] (*A*) ..... N 58
Dynamic Stability of a Beam Carrying Moving Masses [71-APM-M] (*A*) ..... O 59
The Effect of Curvature on Heat or Mass Transfer from an Isothermal Sphere [71-HT-7] (*A*) O 61
Effects of Heat and Mass Transfer on Rayleigh-Taylor Instability [71-FE-7] (*A*) ..... Ag 54
Heat and Mass Transfer in an Incompressible Turbulent Boundary Layer [71-HT-10] (*A*) O 61
The Influence of Turbulence on Mass Transfer from Cylinders [70-WA/HT-3] (*A*) ..... Ap 58
Interface Enhancement for Vertical Tube Evaporators: A Novel Way of Substantially Augmenting Heat and Mass Transfer [71-HT-38] (*A*) ..... N 57
The Turbulent Boundary Layer with Mass Transfer and Pressure Gradient [71-APM-2] (*A*) S 55
Massachusetts Institute of Technology
MIT Environment Lab
Renamed Ralph M. Parsons Laboratory for Water Resources and Hydrodynamics (*EN*) Ja 64
Massoud, M. F.
A Generalized Formulation of the Vectorial Equations of Motion for Nonprismatic Thin Space Beams [71-APM-P] (*A*) ..... O 59
Masuda, S.
On the Behavior of Uniform Shear Flow in Diffusers and Its Effects on Diffuser Performance [71-GT-5] (*A*) ..... Ag 44
Mate, D. P.
Computer Analysis of a Railroad Freight Car Bolster Utilizing the Finite Element Method (*A*) [70-WA/RR-7] (*A*) ..... Je 42
Materials Handling
See also Bulk Material; Cargo Handling; Conveyors; Loads, Loading

Materials Handling (*Continued*)
High-Capacity Stockpiling and Reclaiming [70-WA/MH-6] (*A*) ..... My 53
Photo Briefs
50-Ton Straddle Crane; Four-Stage Upright; Low-Profile Electric Lift Trucks; Ready for Containerization; Sideloading Lift Truck; Swing Shift Lift Truck; Tape-Controlled Stacker Systems; Top Handling Attachment ..... Jl 32, 33
Underseas Forklift (*BTR*) ..... F 56
Materials Technology
Biomedical Materials Compatibility and the Design Challenge [71-DE-8] (*A*) ..... Jl 45
High-Temperature Material (*OS*) ..... Jl 35
Materials [1971 outlook] (*NR*) ..... F 83
Materials Science/Engineering Study (*NB*) .. Je 59
Materials Selection for Design of Pollution Control Equipment [71-DE-12] (*A*) ..... Jl 45
Plane Deformations of Incompressible Fiber-Reinforced Materials [71-APM-V] (*A*) ..... O 60
Mathematics
See also Algebra, Boolean
Asymptotic Formulas for the Buckling Stresses of Axially Compressed Cylinders with Localized or Random Axisymmetric Imperfections [71-APM-29] (*A*) ..... S 57
An Asymptotic Solution of a Rotating Disk [71-APM-Q] (*A*) ..... O 59
Automated Generation of Equations for Displacement Analysis of Spatial Mechanisms [70-Mech-43] (*A*) ..... Ja 50
Calculating the Response of a Four-Bar Linkage [70-Mech-69] (*A*) ..... Ja 52
Computer Aided Mathematical Analysis of Fluid Power Systems [71-DE-29] (*A*) ..... Jl 47
A Computer Simulation of Scavenging and Combustion in a Loop-Scavenged, Two-Cycle Natural Gas Engine [71-DGP-9] (*A*) ..... Ag 49
Concentrated Forces on Shallow Cylindrical Shells [70-WA/APM-2] (*A*) ..... My 57
Cutouts in Shallow Shells [70-WA/APM-3] (*A*) ..... My 57
Determination of the Duration of Memory for Viscoelastic Materials [70-WA/APM-4] (*A*) ..... My 57
Flow Over an Oscillating Plate with Suction or with an Intermediate Film: Two Exact Solutions of the Navier-Stokes Equations [70-WA/APM-22] (*A*) ..... My 59
Formulation of Equations for Orifice Coefficients [70-WA/FM-2] (*A*) ..... Ap 64
A Generalized Formulation of the Vectorial Equations of Motion for Nonprismatic Thin Space Beams [71-APM-P] (*A*) ..... O 59
Mathematical Model for Close Clearance Heat Exchangers [71-HT-32] (*A*) ..... O 63
A Mathematical Programming Approach to the Design of a Transmission [71-DE-16] (*A*) .. Jl 46
A Mathematical Programming Method for Design of Elastic Bodies in Contact [70-WA/APM-52] (*A*) ..... Je 49
Multi-Generation Theorem for Spatial Four-Link Mechanisms via Uni-Axial Stretch-Rotation [70-Mech-60] (*A*) ..... Ja 52
Optimization of a Face Milling Process by Convex Programming [71-Prod-5] (*A*) ..... Jl 49
The Optimum Design of Spatial Frames Using the Method of Constrained Steepest Descent with State Equations [71-DE-H] (*A*) ..... Jl 48
A Proximity Perturbation Method for Linkage Kinematics [70-Mech-4] (*A*) ..... Ja 46
Selection of Equations-of-State for Blast Attenuation [70-WA/APM-12] (*A*) ..... My 58
Singular Solutions to the Shallow Shell Equations [70-WA/APM-1] (*A*) ..... My 57
State-Space Formulation for Bond Graph Models of Multiport Systems [70-WA/Aut-2] (*A*) .. F 69
A Unique Model Set of All RCCC Linkages, Including Mirror-Image Related Linkages [70-Mech-3] (*A*) ..... Ja 46
Matheny, J. E., Jr.
Application of Direction Cosines to Iterative Displacement Synthesis of a Locked Linkage in Space [70-Mech-78] (*A*) ..... Ja 53
Mathis, O. L.
Dynamic Analysis of Structural Frames Supporting Vibrating Conveyors [71-Vibr-34] (*A*) ..... N 51
Matsuki, M.
Lift Jet Engine, JR100 [71-GT-75] (*A*) ..... Jl 41
Matter
The Dispersion of Matter in Turbulent Pipe Flows [70-WA/FE-14] (*A*) ..... F 73
Maxwell, G. Allen deceased ..... Mr 88
Maxwell, R. L.
Experimental Stress Analysis of the Attachment Region of Hemispherical Shells with Single Attached Nozzles [71-PVP-41] (*A*) ..... S 48
May, Griffith deceased ..... My 91
Mayer, E. A.
Fluidic Instrument Pressure Regulator [70-WA/Flcs-4] (*A*) ..... Je 43
Mayer, J. E., Jr.
The Effects of Temperature and Inertia on Hydrostatic Thrust Bearing Performance [70-Lub-10] (*A*) ..... Ja 43
Mayer, P. G.
An Analysis Technique for Composite Structures Subject to Dynamic Loads [70-WA/APM-23] (*A*) ..... My 59
Mayer, Robert G.
ASME Constitution (*C*) ..... Ap 67
Mayfield, A. D.
Design Optimisation Using Computer Techniques [based on 70-DE-41] ..... Ja 22
McAlevy, R. F., III
Nitric-Oxide Generation in a Simulated Spark-Ignition Engine [70-WA/PID-3] (*A*) ..... Mr 63
McBrien, Robert E. deceased ..... Mr 88
McCabe, Clarence H. appointed general manager of Product Service Div., Allis-Chalmers Power Systems, Inc., headquartered in West Allis, Wis. ..... Jl 74
McCabe, J. S.
Multilayer Vessels for High Pressures [based on 70-Pet-32] ..... Mr 34
McCaleb, A. C.
Combating Well Casing Corrosion [71-Pet-16] (*A*) ..... D 48
McCall, H. M. deceased ..... N 93
McCann, C. R.
NO_x Emissions at Low Excess-Air Levels in Pulverized-Coal Combustion [70-WA/APC-3] (*A*) ..... F 68
McClure, E. R.
Thermal Effects in Precision Machining [based on 70-WA/Prod-25] ..... Jl 11
Thermal Effects in Precision Machining [70-WA/Prod-25] (*A*) ..... Mr 62
McCormick, C. E. deceased ..... S 99
McDaniel, T. J.
Noise Abatement in Industry
Interaction of Sound and Structures
Response and Internal Noise of a Fuselage to Random Excitation [70-WA/DE-9] (*A*) ..... F 66, Ap 55
McDonald, C. F.
Advanced Regenerative Gas Turbine Designs for Lightweight and High Performance [71-GT-67] (*A*) ..... Jl 40
McDonald, G. B.
Measured and Predicted Flow Near the Exit of a Radial-Flow Impeller [71-GT-15] (*A*) ..... Ag 44
McDonald, J. S.
Sodium-Heated Modular Steam Generator Design and Development [71-NE-10] (*A*) ..... Jl 43
McDonald, John E.
Carbon Composite Technology ..... F 21
McDonald, P. W.
The Computation of Transonic Flow Through Two-Dimensional Gas Turbine Cascades [71-GT-89] (*A*) ..... Jl 42
McDowell, J. H. deceased ..... N 93
McElhaney, J. H.
Head Injury Tolerance for Linear Impacts by Mechanical Impedance Methods [70-WA/BHF-4] (*A*) ..... Ap 63
A Porous Black Model for Cancellous Bones [70-WA/BHF-2] (*A*) ..... Ap 62
McEligot, D. M.
Internal Laminar Heat Transfer with Gas-Property Variation [71-HT-N] (*A*) ..... N 59
Turbulent Flow Between Parallel Plates with Gas Property Variation [71-FE-38] (*A*) ..... S 53
McElroy, F. F.
Operational Logistics in an Air Pollution Monitoring Network [70-WA/PTC-3] (*A*) ..... My 52
McGarry, James L.
Identifying the Engineer (*C*) ..... Mr 66
McGaw, W. L.
For Gas Turbines: New Standard Rating Point ..... O 34
McGinn, L. F. deceased ..... N 93
McGowan, E. J. deceased ..... Jl 78
McGregor, Leslie S. elected Fellow ASME ..... F 104
McGuire, M. F.
Phase Transformation Effects on the Bending Stress Distributions in Carburized Steel Components [71-Met-H] (*A*) ..... S 54
McIvor, I. K.
A Modified Linear Membrane Theory for the Pressurized Toroid [70-WA/APM-49] (*A*) .. Je 48
McKague, E. L.
Holographic Detection of Microcracks [71-Met-C] (*A*) ..... Ag 48
McKechnie, Robert E.
The Energy Dilemma (*C*) ..... Je 50
McLarnan, C. W.
On the Use of the Undulating Elastica for the Analysis of Flexible Link Mechanisms [70-Mech-33] (*A*) ..... Ja 49
McLay, R. W.
On Certain Approximations in the Finite-Element Method [70-WA/APM-34] (*A*) ..... Je 47
McLerran, Sheridan F. deceased ..... Mr 88
McNeal, D. R. deceased ..... D 88
McQueen, R.
Selection of the Steam Generator for the Proposed 350-MW(e) Demonstration Plant [71-NE-5] (*A*) ..... Jl 42
McRee, D. I.
A Simplified Two-Dimensional Jet Reattachment Model [70-WA/Flcs-8] (*A*) ..... Je 43
Three-Dimensional Turbulent Jet Reattachment [70-WA/Flcs-5] (*A*) ..... Je 43
Mead, D. J.
Noise Abatement in Industry
Interaction of Sound and Structures
Vibration Response and Wave Propagation in Periodic Structures [70-WA/DE-3] (*A*) ..... F 65, Ap 55
Resonance Response Criteria of a Damped Three-Layered Beam [71-Vibr-102] (*A*) ..... D 54
Measuring Devices and Methods
Boiling-Curve Measurements from a Controlled Heat-Transfer Process [71-HT-J] (*A*) ..... N 59
Dynamometer for Drilling Force Measurement [71-Prod-7] (*A*) ..... Jl 49
The Laser in Aerospace (*BTR*) ..... My 43
Measurement of Optical Thickness (*NTB*) .. D 39
Measurement of the Characteristic Impedance of Fluidic Lines [70-WA/Flcs-14] (*A*) ..... Je 44
Reexamination of the Kolsky Technique for Measuring Dynamic Material Behavior [70-WA/APM-31] (*A*) ..... My 59
Shortest Lifetime Ever Recorded (*BTR*) .... Ja 37
Standard Measurement of Aircraft Gas Turbine Engine Exhaust Smoke [71-GT-88] (*A*) .... Jl 42
Subsurface Recording Wireline Flowmeter [71-Pet-9] (*A*) ..... D 48
"Talking" Muscles (*BTR*) ..... F 52
A Traversing-Thermocouple Technique for the Rapid Measurement of Thermal Conductivity in the Range 300 to 1200 K [70-WA/Ener-2] (*A*) ..... Ap 60
Volume-Checking Tool (*NTB*) ..... F 50
MECAR (Metropolitan Engineers Council on Air Resources)
MECAR Tackles Problems of Incineration and Clean Air at Symposium, 1971
For Survival: Are Gas Masks Essential? .. Jl 70
Mechanical Systems
See also Mechanisms
Carriage-Rail Assembly for High-Resolution Mechanical Positioning (*NTB*) ..... D 38
Dynamic Analysis of Mechanical Systems with Clearances
Part 1: Formation of Dynamic Model [70-Mech-64] (*A*) ..... Ja 52
Part 2: Dynamic Response [70-Mech-65] (*A*) ..... Ja 52
Failure Distributions of Mechanical Versus Electrical Components [71-DE-34] (*A*) .... Jl 47
Mechanics
Aerodynamic Approximations for Unsteady Supersonic Flow Through Ducts of Revolution [71-Vibr-23] (*A*) ..... N 50
Analysis of Nonlinear Transient Motion of Cables Using Bond Graph Method [71-Vibr-21] (*A*) N 50
Austenitic Stainless Steels with Unusual Mechanical and Corrosion Properties [71-Pet-38] (*A*) ..... D 51
Bellows Vibration with Internal Cryogenic Fluid Flows [71-Vibr-14] (*A*) ..... N 49
Circular Cylinder Enclosed in Various Shrouds [71-Vibr-28] (*A*) ..... N 50
Computer-Aided Study of Journal Bearing Performance Under Cyclic Loads:
Part I—Theory [71-Vibr-86] (*A*) ..... N 54
Part II—Applications [71-Vibr-87] (*A*) .... N 54
Design and Optimization of Direct-Current Machines [71-Vibr-65] (*A*) ..... N 53
The Effect of Liquids on the Dynamic Motions of Immersed Solids [71-Vibr-100] (*A*) ..... D 53
Flow-Induced Instability of an Elastic Tube [71-Vibr-39] (*A*) ..... N 51
Fluctuating Forces of the Karman Vortex Streets on Single Circular Cylinders and in Tube Bundles
Part 1: The Vortex Street Geometry of the Single Circular Cylinder [71-Vibr-11] (*A*) ..... N 49
Part 2: Lift Forces of Single Cylinders [71-Vibr-12] (*A*) ..... N 49
Part 3: Lift Forces in Tube Bundles [71-Vibr-13] (*A*) ..... N 48
Free-Surface Vibrations of a Magnetic Liquid [71-Vibr-24] (*A*) ..... N 50
A General Nonlinear Relaxation Iteration Technique for Solving Nonlinear Problems in Mechanics [70-WA/APM-43] (*A*) ..... Je 48
Hydro-Rotational Stability of a Slender Plate in a Rectangular Flow Channel [71-Vibr-37] (*A*) N 51
Lumped Parameter Modeling of a Nonlinear Pneumatic-Mechanical System [71-Vibr-41] (*A*) ..... N 51

Mechanics (*Continued*)
Optimum Design of a Linear Multi-Degree-of-Freedom Shock Isolation System [71-Vibr-81] (*A*) ..... D 52
A Survey of Optimization of Mechanical Design [71-Vibr-62] (*A*) ..... N 53
The Suspension Bridge: Its Aeroelastic Problems [71-Vibr-38] (*A*) ..... N 51
Theory for the Determination of Flutter Speed of a Class of Hydrofoils [71-Vibr-19] (*A*) ..... N 49
Vortex Excitation of Metal Bellows [71-Vibr-22] (*A*) ..... N 50

Mechanisms
See also Biomechanics and Human Factors; Cams; Computer-Aided Functions; Elasticity; Epicycles; Gears; Linkages; Watt's Mechanism
Automated Generation of Equations for Displacement Analysis of Spatial Mechanisms [70-Mech-43] (*A*) ..... Ja 50
Closed-Form Displacement Relations of a Five-Link R-R-C-C-R Spatial Mechanism [70-Mech-35] (*A*) ..... Ja 49
Computer-Aided Methods to Relate Analytical and Graphical Design of Mechanisms [70-Mech-77] (*A*) ..... Ja 53
The Constant Strut (*NTB*) ..... My 46
Contributions to the Determination of the Equations of Motion for Multidegree of Freedom Systems [70-Mech-29] (*A*) ..... Ja 48
Coupler Cognates of Eight-Link Mechanisms
Part 1—With Ternary and Quaternary Links [70-Mech-66] (*A*) ..... Ja 52
Part 2—With Ternary Links and Double Joints [70-Mech-67] (*A*) ..... Ja 52
Dégrees of Freedom of Motion in Mechanisms [70-Mech-26] (*A*) ..... Ja 48
Designing for Wear Characteristics of Members in Sliding Mechanisms [71-DE-39] (*A*) ..... Ag 46
Development and Application of a Generalized d'Alembert Force for Multifreedom Mechanical Systems [70-Mech-25] (*A*) ..... Ja 48
Dimensional Synthesis of the Spherical Double-Rocker Mechanism [70-Mech-81] (*A*) ..... Ja 54
A Direct Method for Analyzing Accelerations in Complex Mechanisms [71-APM-X] (*A*) ..... O 60
Dynamic Analysis of Mechanisms Using Screw Coordinates [70-Mech-41] (*A*) ..... Ja 50
Eight-Link Coupler Mechanism with Two Parallelogram Loops [70-Mech-52] (*A*) ..... Ja 51
Elasticity Link Mechanism Dynamics [70-Mech-40] (*A*) ..... Ja 50
Elliptical Gears [70-Mech-68] (*A*) ..... Ja 52
Existence Criteria of an Overconstrained Spatial Mechanism with Three Revolute Pairs and One Spherical Pair [70-Mech-72] (*A*) ..... Ja 52
Generalized Cycloidal Motion [70-Mech-22] (*A*) Ja 48
A Generalized Symbolic Notation for Mechanisms [70-Mech-19] (*A*) ..... Ja 47
Gross Motion Classifications of the RCCC Chain [70-Mech-56] (*A*) ..... Ja 51
Inertia Force Analysis of Spatial Mechanisms [70-Mech-5] (*A*) ..... Ja 46
The Intersections of Solids Shown by Electronic Analog for Mechanism Simulation [70-Mech-6] (*A*) ..... Ja 46
Kinematic Analysis of Spatial Mechanisms by Means of Screw Coordinates
Part 1—Screw Coordinates [70-Mech-13] (*A*) Ja 47
Part 2—Analysis of Spatial Mechanisms [70-Mech-14] (*A*) ..... Ja 47
Kinematic Models of Spatial Mechanisms [70-Mech-74] (*A*) ..... Ja 53
Kineto-Elastodynamic Harmonic Analysis of Four-Bar Path Generating Mechanisms [70-Mech-61] (*A*) ..... Ja 52
The Method of Residues for the Synthesis of Coupler Curve Generating Mechanisms [70-Mech-53] (*A*) ..... Ja 51
Minimization of Mechanism Oscillations Through Flywheel Tuning [70-Mech-15] (*A*) ..... Ja 47
Minimum Error Synthesis of Space Mechanisms for the Generation of Constrained and Unconstrained Screws [70-Mech-27] (*A*) ..... Ja 48
The Missing Link: An Extension of Gruebler's Theory [70-Mech-70] (*A*) ..... Ja 52
Mobility Analysis of Plane and Spatial Mechanisms [70-Mech-21] (*A*) ..... Ja 47
On a Model of a Pneumatically Actuated Mechanical System [70-Mech-34] (*A*) ..... Ja 49
Multi-Generation Theorem for Spatial Four-Link Mechanisms via Uni-Axial Stretch-Rotation [70-Mech-60] (*A*) ..... Ja 52
Multiple-Harmonic Cam Profiles [70-Mech-59] (*A*) ..... Ja 51
Multiply Separated Position Design of the Geared Five-Bar Function Generator [70-Mech-16] (*A*) Ja 47
Optimal Torque Balance for a Complex Stamping and Indexing Machine [70-Mech-82] (*A*) ..Ja 54
On the Realisability of Permutational Synthesis of Mechanisms [70-Mech-58] (*A*) ..... Ja 51
Reduction of Shaking Forces in a Slider Crank Mechanism [70-Mech-73] (*A*) ..... Ja 53
Roberts' Cognate of Space Five-Link RHHHH and HHRHH Mechanisms [70-Mech-36] (*A*) Ja 49
On the Smallest Circle Determined by Three Positions of a Rigid Body [70-Mech-11] (*A*) Ja 47
Spring and Follower Characteristics Due to Internal Damping and Cam Actuation [70-Mech-76] (*A*) Ja 53
Static Force and Torque Analysis Using 3 x 3 Screw Matrix, and Transmission Criteria for Space Mechanisms [70-Mech-18] (*A*) ..... Ja 47
A Strong Relationship Between New and Old Inversion Mechanisms [70-Mech-9] (*A*) ...Ja 46
Synthesis of Four-Link Space Mechanisms via Extension of Point-Position-Reduction Technique [70-Mech-17] (*A*) ..... Ja 47
Synthesis of Six-Link Mechanisms for Simultaneous Coordination of Coupler, Input, and Output Links [70-Mech-57] (*A*) ..... Ja 51
Tolerance Analysis of Mechanisms Using PA-300: A General Probabilistic Problem Solving Language [70-Mech-44] (*A*) ..... Ja 50
The Use of a Planar Mechanism Synthesis to Produce a Spherical Path Generator Linkage [70-Mech-51] (*A*) ..... Ja 51
Velocity and Acceleration Synthesis of Four-Bar Mechanisms by Curve Matching [70-Mech-42] (*A*) ..... Ja 50

Medicine
Joint Information Project [between U. S. and Yugoslavia] (*NB*) ..... D 67
A Synopsis of the Use of Fluerics in Medicine [70-WA/Flcs-16] (*A*) ..... Je 44

Meetings
Applied and Theoretical Mechanics
See Meetings: Theoretical and Applied Mechanics
Applied Mechanics Division
Summer Conference, 1971
Preview ..... My 82
Western Conference, 1971
Preview ..... Je 76
ASME Forum Discusses Proposed Federal Emission Standards ..... O 83
Auerbach Conference on Data Communication and Business Strategy, 1971
Review (*NR*) ..... D 65
Automatic Control
American Automatic Control Council Annual Joint Conference
12th, 1971
Preview ..... My 74
International Federation of Automatic Control
5th Congress, 1972
Call for Papers ..... Ja 103
Management Control Symposium, 1971
Call for Papers ..... Ja 103
Automation
See Meetings: Vibrations
Design Engineering Annual Conference and Show, 1971
Preview ..... F 94
Review ..... Je 70
Diesel and Gas Engine Power Division Holds 50th Anniversary Celebration at Annual Conference and Exhibit
43rd, 1971
Preview ..... F 95
Review ..... Jl 65
EJC Technical Information Seminar Gets Earful on Noise Pollution Control (*NR*) ..... Mr 70
Engineering Employment Practices
NSPE Cosponsor of 2-Day Conference, 1971
Preview ..... My 76
Review ..... Ag 64
Engineering Management Annual Joint Conference
18th, 1970
Review ..... Ja 94
19th, 1971
Preview ..... Ap 84
Review ..... S 90
Environmental Control/Life Support Systems Intersociety Conference (SAE, ASME, AIAA, ASMA)
1st, 1971
Preview ..... My 80
Review ..... O 85
Experimental Mechanics
See Meetings: Society for Experimental Stress Analysis
Flow: Measurement and Control in Science and Industry Interdisciplinary Symposium
1st, 1971
Preview ..... Ap 81
Review ..... Jl 72
Fluids Engineering Annual Conference, 1971
Preview ..... Mr 79, Ap 81
Review ..... S 89
Gas Turbine
Annual Conference and Products Show
16th, 1971
Preview ..... Ja 96
Review ..... Je 64
International Joint Conference
3rd, 1971
Preview ..... Ag 81
Grinding and Abrasive Machining International Conference, 1972
Preview ..... S 94
Heat Transfer
National Conference
12th, 1971
Preview ..... Jl 65
Review ..... O 79
Heat Transfer and Fluid Mechanics
2nd Brazilian Symposium, 1971
Review (*OS*) ..... O 53
Human Environment Conference Scheduled by United Nations in Stockholm, 1972
Managing Ocean Resources Action Urged (*OS*) Je 38
Industrial Power
See Meetings: Power
Liability Prevention Annual Conference
2nd, 1971
Preview (*EN*) ..... Ap 73
Lubrication Annual Joint (ASLE, ASME) Conference
17th, 1970
Review ..... F 95
18th, 1971
Preview ..... S 93
Review ..... D 77
19th, 1972
To be designated 2nd International Conference ..... S 93
MECAR Symposium on Incineration and Clean Air, 1971
Review ..... Jl 70
Mechanisms Biennial Conference
11th, 1970
Review ..... Ja 98
Metals Engineering
See Meetings: Production Engineering
Noise Abatement in Industry Symposium at ASME 91st Winter Annual Meeting, 1970
Abstracts of Papers ..... Ap 54–58
Nuclear Engineering Division 1st National Conference, 1971
Fast Breeder Reactor Power Plants
Preview ..... Ja 96, F 95
Review ..... Je 68
Numerical and Computer Methods in Structural Mechanics International Symposium, 1971
Preview ..... Jl 70
Offshore Technology Annual Joint Conference
3rd, 1971
Preview ..... Ja 95, F 94
Review ..... Je 55
Peaceful Uses of Atomic Energy 4th Conference, 1971
Review (*NR*) ..... N 64
Petroleum Mechanical Engineering 26th Annual Conference with 4th Underwater Technology Conference, 1971
Preview ..... Jl 71
Review ..... N 79
Plant Engineering and Maintenance
Annual Conference
14th, 1971
Preview ..... S 93
Review ..... D 78
Technical Conference Organized in Southeast Asia by U. S. Commerce Department
7th, 1971: Chairman is Herbert F. Lund S 97
Power Conferences
American
33rd Annual, 1971
Preview ..... Mr 81
Review ..... Ag 64
Industrial
1st, 1971
Preview ..... Ap 82, My 80
Review ..... Ag 74
International Nickel Co.
10th, 1971
Review ..... Ag 66
Power Generation Joint Conference, 1971
Preview ..... Ag 81
Review ..... D 73
Pressure Vessels and Piping National Congress
1st, 1971
Preview ..... Mr 79
Review ..... Jl 62
Production and Metals Engineering Joint Conference, 1971
Preview ..... F 95, Mr 79

Meetings (*Continued*)
Railroad Annual IEEE-ASME Conference, 1971
Preview....Mr 79
Review....Je 74
Reliability and Maintainability
10th and Final R & M Conference of ASME, SAE, AIAA in 1971
Preview....My 81
Review....S 92
1st Annual Symposium in 1972 by Merging ASME, SAE, AIAA R & M Conference with IEEE, ASQC, IES, AIEE Annual Symposium on Reliability
Theme of 1st Symposium: A Forum on the Assurance Technologies....Ag 81, O 85
Society for Experimental Stress Analysis
11th Annual Joint Symposium, 1971
Experimental Mechanics
Preview....Ja 96
Solid Waste Management Seminar, 1971
Review....Ag 80
Structures, Structural Dynamics, and Materials `AIAA-ASME Joint Conference
12th, 1971
Preview....Mr 80
Theoretical and Applied Mechanics International Congress
13th, 1972
Preview....Ap 81, O 71
Transportation National Meeting (ASCE, ASME), 1971
Preview....My 80, Je 75
Review....S 77
Two-Day Statistics and Environment Conference Slated for USC Campus [1972] (*EN*)....D 69
Two-Phase Systems International Symposium, 1971
Preview....Ag 82
Underwater Technology 4th Annual Conference with 26th Petroleum Mechanical Engineering Conference 1971
Preview....Jl 71
Review....N 79
Urban Technology Annual Conference
1st, 1971
Review....Jl 55
Vibrations 3rd Biennial Conference and 1st International Design Automation Conference, 1971
Preview....Ag 83
Review....N 76
Mehmel, Louis E. deceased....Ja 107
Mehta, K. N.
Burst-Strength Analysis of Finite-Length, Specially Orthotropic Cylinders with Different End Closures [71-PVP-21] (*A*)....Ag 52
Meiners, K. E.
Joining Techniques for Fabrication of Composite Air-Cooled Turbine Blades and Vanes [71-GT-32] (*A*)....Jl 37
Meirovitch, Leonard named member of American Institute of Aeronautics and Astronautics technical committee and appointed an associate editor of *Journal of Spacecraft and Rockets* for three-year term Mr 84; named full professor in Department of Engineering Mechanics, Virginia Polytechnic Institute, Blacksburg, Va....D 80
Meitzner, C. F.
Cause and Prevention of Stress-Relief Cracking in Quenched and Tempered Steel Weldments [71-PVP-3] (*A*)....Ag 49
Melcon, M. A.
Controlling Structural Fatigue Through Adhesive Bonding [71-DE-27] (*A*)....Jl 47
Melese-d'Hospital, G. B.
Gas-Cooled Fast Breeder Reactor Designs [71-NE-2] (*A*)....Jl 42
Melnyk, P.
Metal Matrix Composite Fabrication Procedures for Gas Turbine Engine Blades [71-GT-46] (*A*) Jl 38
Melting
Making Specialty Steel in a Special Way (*BTR*) Ja 36
Melton, R. B., Jr.
The Interaction of Air Motion, Fuel Spray, and Combustion in the Diesel Combustion Process [71-DGP-2] (*A*)....Ag 48
Meltzer, Leonard A.
ASME Constitution (*C*)....Ap 67
Melver, W. N.
The Job Problem (*C*)....Ap 68
Melville (George Wallace) Medal
See Honors
Membranes
On the Contact Problems of Inflated Cylindrical Membranes with a Life Raft as an Example [71-APM-11] (*A*)....S 56
Indentation of a Circular Membrane [70-WA/APM-33] (*A*)....Je 47
A Modified Linear Membrane Theory for the Pressurized Toroid [70-WA/APM-49] (*A*) Je 48
Noise Abatement in Industry
Interaction of Sound and Structures
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
The Separation of Membrane and Bending Shears in Shell with Two Birefringement Coatings [70-WA/APM-28] (*A*)....Je 46
Uniaxial Stretching of the Red-Cell Membrane [70-WA/BHF-12] (*A*)....Ap 64
Memory
Applications of Self-Organising and Learning Control to Aeronautical and Industrial Systems [71-DE-22] (*A*)....Jl 46
Menner, Frederic deceased....Ap 88
Mensonides, S. deceased....Jl 78
Merchant, Mylon Eugene installed as an at-large director by Society of Manufacturing Engineers F 101; to receive ASME Honorary Membership at 1971 Winter Annual Meeting S 89
Mercurio, Savino F.
ASME Constitution (*C*)....Ap 67
Meredith, Henry H., Jr. receives Fellow ASME certificate....F 103
Merkle, J. G.
An Analytical Basis for Notch Sharpening by Fatigue [71-PVP-46] (*A*)....Ag 53
Fracture Safety Analysis Concepts for Nuclear Pressure Vessels, Considering the Effects of Irradiation [70-WA/Met-2] (*A*)....My 52
Merriam, R.
Spaceborne Passive Radiators for Detector Cooling [71-Av-30] (*A*)....O 57
Merrick, Charles M.
Ten Years' Progress in Management, 1960–1970 Foreword (*A*)....Mr 56
Merrill, D. R. deceased....O 91
Merrill, G. L.
Fluidic Temperature Control for Liquid-Cooled Space Suits [70-WA/Fics-19] (*A*)....Je 44
Merrill, Marcellus S. receives Distinguished Engineering Alumnus Achievement Award of University of Colorado Engineering Development Council....Je 78
Merz, Charles J. receives ASME award as Regional Faculty Advisor of Year....Ja 105
Mesloh, R.
Large Engines—Analyse Before Fabricating [71-DGP-7] (*A*)....Ag 48
Messal, E. E.
Subharmonic Rotor Instability Due to Elastic Asymmetry [71-Vibr-57] (*A*)....N 52
Metal Cutting
See Metals; Production Engineering
Metals
See also Alloys; Chips; Crack; Deformation; Fatigue; Forging; Fracture; Machining; Plates; Prediction Methods; Production Engineering; Steel; Tools
Anisotropy of Fatigue Crack Propagation [71-Met-G] (*A*)....Ag 48
The Art of the Matter (*BTR*)....Ja 37
Automatic Planning of Optimal Metal-Cutting Operations and Its Effect on Machine-Tool Design [70-WA/Prod-14] (*A*)....Mr 60
Big Vacuum Furnace (*PB*)....Je 36, 37
Cold-Machining—An Investigation of the Mechanics of Metal Cutting as Affected by the Workpiece Temperature in the Sub-Zero Range [70-WA/Prod-24] (*A*)....Mr 62
A Continuing Study in the Determination of Temperatures in Metal Cutting Using Remote Thermocouples [70-WA/Prod-23] (*A*)....Mr 62
Desulfurization Know-How to Sweden (*OS*)..F 63
Determination of Residual Stresses from Stress Intensity Factor Measurements [71-Met-A] (*A*) Ag 47
Dynamic Expansion of an Open-Ended Tube [71-Met-K] (*A*)....S 54
Eddy-Current Flaw-Tester (*OS*)....My 51
Some Effects of Injecting Cutting Fluids Directly into the Chip-Tool Interface [70-WA/Prod-2] (*A*)....Mr 59
An Experimental Evaluation of Plasticity Theories for Anisotropic Metals [70-WA/APM-17] (*A*) My 58
Fireside Metal Wastage in Municipal Incinerators [70-WA/Inc-2] (*A*)....F 67
Fracture of Structural Metals as Related to Pressure-Vessel Integrity and In-Service Monitoring [71-PVP-60] (*A*)....S 50
Fracture Toughness of ASTM A533 Grade B Class 1 Heavy Section Submerged Arc Weldments [71-Met-B] (*A*)....Ag 48
The Free Plastic Compression of Pure Metals [70-WA/APM-10] (*A*)....My 58
Fretting and Fretting-Fatigue in Metal-to-Metal Contacts [71-DE-38] (*A*)....Ag 46
Holographic Detection of Microcracks [71-Met-C] (*A*)....Ag 48
Investigations of the Substitutions of Isothermal Fabrication Programs for Last Pass Temperature Control Programs [71-Met-2] (*A*)....Ag 48
Joining Metals with Different Expansion Rates (*NTB*)....Ag 37
Metal Erosion through Water Impact (*NTB*) N 38
Metal Matrix Composite Fabrication Procedures for Gas Turbine Engine Blades [71-GT-46] (*A*) Jl 38
Photofabrication of Metal Parts [based on 71-DE-32]....N 19
Photofabrication of Metal Parts [71-DE-33] (*A*) Jl 47
The Plastic Flow of Surface Metal Layers [71-APM-W] (*A*)....O 60
Predicting Behavior of Metals (*BTR*)....F 49
Sorting Things Out (*BTR*)....D 37
A Theoretical Approach to Creep Deformation During Intermittent Load [71-Met-F] (*A*) Ag 48
Vortex Excitation of Metal Bellows [71-Vibr-22] (*A*)....N 50
Yield Criteria and the Bauschinger Effect for a Plastic Solid [71-Met-P] (*A*)....S 55
Metcalf, J. T.
New Fuels—Old Coal [71-Pet-15] (*A*)....D 48
Methemoglobinemia
Counterattack on Methemoglobinemia (*BTR*) Mr 51
Metric System
ANSI Special Committee to Study Development of Optimum Metric Fastener System....O 71
ASME and Metric Conversion....Ap 38
Metrication (*C*)....S 58
Metrication (*C*)....D 56
Metro
Automatic Fare Paying (*OS*)....O 52
Metropolitan Engineers Council on Air Resources
See MECAR
Metropolitan Transportation Authority
Republic Airport Transportation Center at Farmingdale, N. Y.
Plan for Transportation Complex (*NB*)....O 73
Metzger, C. A.
Integrated Waste Management-Water System Using Radioisotopes for Thermal Energy [71-Av-4] (*A*)....O 55
Metzger, D. E.
Effects of Crossflow on Impingement Heat Transfer [71-GT-1] (*A*)....Ag 44
Mexico
New Power Plant (*OS*)....Ag 42
Meyer, Harold F. deceased....Mr 88
Meyer, Peter deceased....Mr 88
Michaud, G. H.
Effect of Higher Harmonics on Performance of Vibratory Conveyors [71-Vibr-35] (*A*)....N 51
Mickas, George appointed chief engineer for Sipco Machine Co....Ag 85
Mickey, Wendell
Of Dams and 'Quakes (*BTR*)....O 42
Micro Switch 1SV1
"Rolling Wave" Micro Switch (*BTR*)....D 36
Mid-Atlantic Consortium of Universities on Air Pollution
Universities Join to Fight Air Pollution (*EN*) Jl 58
Middle Atlantic Power Research Committee (MAPRC)
Utilities Award Grants (*EN*)....My 77
Mihelick, J. R.
The Computer as a Design Tool [71-DE-43] (*A*) Ag 47
Mikkowitz, Julius elected Fellow ASME..Mr 85
Mikolajczak, A. A.
Performance of Compressor Blade Rows in a Sloping Flowpath [71-GT-13] (*A*)....Jl 36
Miles, H. S., Jr.
How Will We Meet the Demand for Electrical Power in 1980? [70-WA/Fu-3] (*A*)....F 75
Miles, John B. accepts National Research Council senior postdoctoral research associateship at NASA Ames Research Center, Mountain View, Calif....F 101
Milestone, W. D.
Fretting and Fretting-Fatigue in Metal-to-Metal Contacts [71-DE-38] (*A*)....Ag 46
Miller, Edward F.
Growth ≠ Progress (*C*)....Jl 50
Miller, F. D.
The Jet Fuel Starter Goes Operational [71-GT-43] (*A*)....Jl 38
Miller, J. A.
Nonsimilar Solution of the Laminar Boundary Layer in an Oscillatory Flow by an Integral Matrix Method [71-FE-10] (*A*)....Ag 54
Miller, John S.
Professional Society (*C*)....F 77
Miller, P. D.
Fireside Metal Wastage in Municipal Incinerators [70-WA/Inc-2] (*A*)....F 67
Materials Selection for Design of Pollution Control Equipment [71-DE-12] (*A*)....Jl 45

Miller, Ralph E. deceased ..... F 106
Miller, T. H. deceased ..... N 93
Milligan, Mancil W. vice-president of Tau Beta Pi Association's executive council until 1974 ..... F 101
Rarefied Gas Flow Through Long Square Tubes [70-WA/PID-1] (*A*) ..... Mr 63
Milling
Optimization of a Face Milling Process by Convex Programming [71-Prod-5] (*A*) ..... Jl 49
Mills, A. F.
Laminar Film Condensation from a Steam-Air Mixture Undergoing Forced Flow Down a Vertical Surface [71-HT-E] (*A*) ..... N 58
Mills, E. S.
Oxygen Recovery for the 90-Day Space Station Simulator Test [71-Av-18] (*A*) ..... O 56
Mills, Robert W. reelected ASME Region VII Vice-President 1972–1974 ..... N 85
Miloh, T.
The Resistance to Rotation of Free and Enclosed Disks [71-APM-25] (*A*) ..... S 57
Min, G. B.
Nonlinear Vibration of Buckled Beams [71-Vibr-17] (*A*) ..... N 49
Minardi, J. E.
Computed Performance Characteristics of Electrofluid Dynamic Colloid Generators [70-WA/Ener-5] (*A*) ..... Ap 61
Mindlin, Raymond D. awarded Thomas Egleston Medal at School of Engineering and Applied Science, Columbia University S 97; receives Trent-Crede Award from Acoustical Society of America ..... D 80
Miner, Irving O. elected Fellow ASME ... D 81
Minerals
Screening Mineral Samples (*NTB*) ..... Je 30
Minimization
The Merit of Different Error Minimization Criteria in Approximate Analysis [71-APMW-8] (*A*) N 55
Mining
Coal Buckets on a Wheel (*PB*) ..... N 46, 47
Coal Mining in an Oxygen-Free Atmosphere [70-WA/PID-4] (*A*) ..... Mr 63
Surface Mining (*NB*) ..... N 68
World's Largest Wheel Excavator (*OS*) ..... N 45
Mirrors
See also Laser Technology
A Unique Model Set of All RCCC Linkages, Including Mirror-Image Related Linkages [70-Mech-3] (*A*) ..... Ja 46
Mischke, C. R.
Some Tentative Weibullian Descriptions of the Properties of Steels, Aluminums, and Titaniums [71-Vibr-64] (*A*) ..... N 53
Miskoe, J. W.
Marine Coring (*C*) ..... F 77
Mist Flashback Apparatus
Leadless Gas a Fire Hazard? (*BTR*) ..... O 43
Mitchell, H. William named chief construction inspector by Glasgow & Associates, Inc., Emigsville, Pa. ..... Je 78
Mitchell, James R. deceased ..... Mr 88
Mitchell, John W.
Base Heat Transfer in Two-Dimensional Subsonic Fully Separated Flows [71-HT-D] (*A*) ..... N 58
Miter Bend
See Bend, Bending
Mixing
Development of Modern Turbulent-Mass Hot-Mix Plant [71-Pet-28] (*A*) ..... D 50
On the Measurement of Fluctuating Pressure in the Mixing Zone of a Round Jet [71-FE-31] (*A*) S 53
The Mixing of Two Parallel Streams of Dissimilar Fluids
Part 1: Analytical Development [70-WA/APM-37] (*A*) ..... Je 47
(Turbulent Mixing of Two Parallel Streams)
Part 2: An Experimental Investigation [70-WA/APM-38] (*A*) ..... Je 47
Transition and Mixing in the Shear Layer Produced by Tangential Injection in Supersonic Flow [71-FE-24] (*A*) ..... S 51
The Two-Phase Critical Flow of One-Component Mixtures in Nozzles, Orifices, and Short Tubes [70-WA/HT-5] (*A*) ..... Ap 58
Miyata, M.
The Response of Narrow-Mouthed Harbors in a Straight Coastline to Periodic Incident Waves [70-WA/APM-46] (*A*) ..... Je 48
Miyaura, S.
Studies on the New Vibratory Powdering Machine [71-Vibr-26] (*A*) ..... N 50
Miyazawa, K.
Lift Jet Engine, JR100 [71-GT-75] (*A*) ..... Jl 41
Mizuki, S.
A Study on the Flow Pattern Within the Centrifugal and Mixed-Flow Impellers [71-GT-41] (*A*) Jl 38
Moats, E. R.
Maintenance of Power Equipment [71-IPwr-4] (*A*) S 53
Moavenzadeh, F.
Determination of the Duration of Memory for Viscoelastic Materials [70-WA/APM-4] (*A*) My 57
Mobarek, M. M.
ASME Employment Aids (*C*) ..... My 60
Mobbs, F. R.
Visual Observations and Torque Measurements in the Taylor Vortex Regime Between Eccentric Rotating Cylinders [70-Lub-13] (*A*) ..... Ja 43
Mobility
Mobility Analysis of Plane and Spatial Mechanisms [70-Mech-21] (*A*) ..... Ja 47
Portable Mobility Meter (*OS*) ..... Jl 34
Mock, Clifford I. reelected a representative-at-large to Illinois Institute of Technology Alumni Association Board of Directors for 1971–72 ..... S 98
Modeling Methods
A Finite Element Model for Distributed Parameter Turbomotor Systems [71-Vibr-56] (*A*) N 52
Lumped Parameter Modeling of a Nonlinear Pneumatic-Mechanical System [71-Vibr-41] (*A*) N 51
Mathematical and Experimental Modeling of the Circulation Patterns in Glass Melts [70-WA/HT-11] (*A*) ..... Ap 59
Methods of Modeling and Analyzing Viscoelastically Damped Structures [71-Vibr-36] (*A*) ..... N 51
Modeling Dimensions and Tolerances by Simulation [71-DE-5] (*A*) ..... Jl 44
A Simulation Model for Flexible Rotating Equipment [71-Vibr-71] (*A*) ..... N 54
Modrey, J.
Effect of Higher Harmonics on Performance of Vibratory Conveyors [71-Vibr-35] (*A*) ..... N 51
MODULA
Numerically Controlled Machine Tools (*OS*) Ja 41
Modulators, Modulation
See also Frequencies
A Generalized Static Model for Fluidic Impact Modulators [70-WA/Flcs-2] (*A*) ..... Je 43
Moehling, C.
Computer Analysis of a Railroad Freight Car Bolster Utilizing the Finite Element Method [70-WA/RR-7] (*A*) ..... Je 42
Moen, L. J.
Design Considerations in Inertia Welding of Turbocharger and Gas Turbine Components [71-GT-21] (*A*) ..... Ag 45
Moen, Walter B. appointed division manager of National-Standard Co.'s Auto Arc Div., Strongsville, Ohio ..... D 80
Moffat, R. J.
Experimental Hydrodynamics of the Accelerated Turbulent Boundary Layer With and Without Mass Injection [71-HT-F] (*A*) ..... N 58
Moftah, M.
Gas Turbine Performance Under Varying Ambient Temperature [71-GT-57] (*A*) ..... Jl 39
Mogbo, N. C.
Effective Stiffness of Concrete Coated Line Pipe [71-Pet-26] (*A*) ..... D 50
Mohan Das, N.
Uniaxial Stretching of the Red-Cell Membrane [70-WA/BHF-12] (*A*) ..... Ap 64
Mohan Rao, A. V.
Extension of Freudenstein's Equation to Geared Linkages [70-Mech-32] (*A*) ..... Ja 49
Mohler, R. A.
Mathematical Model for Close Clearance Heat Exchangers [71-HT-32] (*A*) ..... O 63
Mokadam, R. G.
The Job Problem (*C*) ..... Ap 67
Mokhtar, M. O. A.
Computer-Aided Study of Journal Bearing Performance Under Cyclic Loads:
Part I—Theory [71-Vibr-86] (*A*) ..... N 54
Part II—Applications [71-Vibr-87] (*A*) ..... N 54
Molykote G-Plus
Lubricant for the "Wear-In" (*BTR*) ..... Mr 50
Momentum
Predictions of Momentum Transfer Between Rotating Cylinders: The Narrow Gap Problem [71-APM-30] (*A*) ..... O 58
Sectionalized Compressible and Momentum Integral Models for Channel Hydrodynamics [71-HT-14] (*A*) ..... O 61
Mongan, T. R.
Engineering a Better Environment
10: Designing an Air Monitoring Facility Ag 24
Air Monitoring Facility (*C*) (*AC*) ..... N 60
Monitors, Monitoring
Air Monitoring with the Alpha Particle (*BTR*) Ap 44
Analysis and Physiological Monitoring of the Human Left Ventricle [70-WA/BHF-14] (*A*) Ap 63
Electronic Super Guard (*BTR*) ..... N 40
Engineering a Better Environment
10: Designing an Air Monitoring Facility .. Ag 24
Air Monitoring Facility (*C*) (*AC*) ..... N 60
Fetal Monitor (*BTR*) ..... Jl 26
"Flying Test Cell" Evaluation and Applications [71-GT-77] (*A*) ..... Jl 41
Fracture of Structural Metals as Related to Pressure-Vessel Integrity and In-Service Monitoring [71-PVP-60] (*A*) ..... S 50
GEOALERT Warning System (*NB*) ..... N 69
New Process Control Computer (*BTR*) ..... Mr 49
Off-the-Shelf Vibration System (*BTR*) ..... S 39
Operational Logistics in an Air Pollution Monitoring Network [70-WA/PTC-3] (*A*) ..... My 52
The Rationale of Monitoring Vibration on Rotating Machinery in Continuously Operating Plant [71-Vibr-96] (*A*) ..... D 53
Remote Heart Monitor (*BTR*) ..... Jl 29
Vibration Monitoring System (*OS*) ..... D 45
Waste Monitoring Urged (*BTR*) ..... Mr 49
Mono-Kote IV
See Coatings
Monroe, E. S., Jr.
Combustion Safety in Industrial Boilers [71-IPwr-3] (*A*) ..... S 53
Monte Carlo Method
Determination of the Radiation Properties of a Semi-Transparent Cylindrical Body Using the Monte Carlo Method [70-WA/HT-13] (*A*) Ap 59
Montgomery, R.
Flow Over an Oscillating Plate with Suction or with an Intermediate Film: Two Exact Solutions of the Navier-Stokes Equations [70-WA/APM-22] (*A*) ..... My 59
Moody (Lewis F.) Award
See Honors
Moon-Orbiting Laboratory
See Lunar Technology
Moore, Charles A. deceased ..... Ja 107
Moore, M. G.
Factors Affecting Design and Reliability of High Performance Gears in Process Compressor Trains [71-Pet-30] (*A*) ..... D 50
Moore, Raymond E. receives 1971 ASME Prime Movers Committee Award D 74, 75, 80
Morality
Legal and Moral Responsibilities of Engineers Toward Public Safety [70-WA/Av-2] (*A*) .. F 68
Morey, Albert A. becomes chairman of the board of Natkin & Co. ..... Ap 85
Morgan, D. E. deceased ..... N 93
Morkovin, Mark V. elected Fellow ASME Je 78
Moroz, W. J.
Plume Rise and Dispersion in a Local Wind System [70-WA/Fu-1] (*A*) ..... F 75
Morris, F. S.
Tracer Tests for Nuclear Power Plant Steam Turbines [based on 69-WA/PTC-3] ..... Ja 15
Morris, J. P.
180-Day Life Test of Solid Electrolyte System for Oxygen Regeneration [71-Av-32] (*A*) ..... O 57
Morris, P. A.
Fast Reactor Siting and Safety (AEC Regulatory Procedures and Views) [71-NE-4] (*A*) ..... Jl 43
Morrow, L. C. deceased ..... N 93
Morse, Frederick B. wins Purdue University's Harry Solberg Award for outstanding undergraduate teaching ..... Jl 74
Morse, I. E., Jr.
Torsional Response of a Gear Train System [71-Vibr-77] (*A*) ..... D 52
Morton, P. G.
Measurement of the Dynamic Characteristics of a Large Sleeve Bearing [70-Lub-14] (*A*) ..... Ja 44
Moses, F.
A First-Passage Approximation in Random Vibration [70-WA/APM-14] (*A*) ..... My 58
Moses, H. L.
Flow and Pressure Recovery in Wall-Attachment Fluid Amplifiers [70-WA/Flcs-9] (*A*) ..... Je 43
Mosher, Harold A. retires at Kodak Park Division, Eastman Kodak Co. ..... Ap 85
Moskowitz, S. L.
2750 Deg F Engine Test of a Transpiration Air-Cooled Turbine [70-WA/GT-1] (*A*) ..... My 56
Mosna, T. deceased ..... N 93
Moss, V. D.
Controlling Structural Fatigue Through Adhesive Bonding [71-DE-27] (*A*) ..... Jl 47
Motion
See also Gross Motion Classifications
An Application of Boolean Algebra to the Motion of Epicyclic Drives [70-Mech-28] (*A*) ..... Ja 48
Bounds on Motions of Some Lumped and Continuous Dynamic Systems [71-APMW-3] (*A*) N 55
Contributions to the Determination of the Equations of Motion for Multidegree of Freedom Systems [70-Mech-29] (*A*) ..... Ja 48
Coordinated Motion Control of Prosthetic Arms and Remote Manipulators [70-Mech-75] (*A*) Ja 53
Degrees of Freedom of Motion in Mechanisms [70-Mech-26] (*A*) ..... Ja 48
The Effect of Liquids on the Dynamic Motions of Immersed Solids [71-Vibr-100] (*A*) ..... D 53

Motion (*Continued*)
Generalized Cycloidal Motion [70-Mech-22] (*A*) Ja 48
A Generalized Formulation of the Vectorial Equations of Motion for Nonprismatic Thin Space Beams [71-APM-P] (*A*) ..... O 59
An Iterative Method for Analysing Oscillating Cam Follower Motion [70-Mech-23] (*A*) .. Ja 48
Particle Motion on Oscillating Conveyors
Part 1: The Equations of Motion and the Rules for Predicting Motion from Transitions [71-Vibr-15] (*A*) ..... N 49
Part 2: Practical Solutions to the Equations of Motion and the Extension of the Theory to Beds of Granular Material [71-Vibr-16] (*A*) ..... N 49
Rigid-Body Approximations to Turbulent Motion in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-Y] (*A*) ..... O 60
Steady Motion of a Rigid Strip Bonded to an Elastic Half Space [70-WA/APM-56] (*A*) Je 49
Variational Equation of Motion for Coupled Flexure and Torsion of Bars of Thin-Walled Open Section Including Thermal Effect [70-WA/APM-51] (*A*) ..... Je 48
Motion Pictures
Engineering Films ..... Ap 75; S 85
A "Walk Around" the Beating Heart (*BTR*) Jl 28
Motivation
AMA Conference Highlights Productivity Through Motivation ..... Ap 80
Motor Vehicles
See Vehicles, Motor
Motors, Electric
Engineering a Better Environment
2: High-Speed Interurban Transportation Systems
Fast Transit Link [based on 69-WA/PID-11]
Fast Transit Link (*C*) (*D*) (*AC*) .... Mr 66
Solid-State A-C Variable Speed Drives [based on 70-DE-9]
Rapid Transit Progress (*C*) ..... F 77
Motors, Hysteresis
Slow-Speed Drives for Miniature Devices (*NTB*) Ja 34
Motors, Linear Induction
Electric Wayside Power (*NB*) ..... Je 59
High-Speed Ice Train [based on 70-WA/RR-3] Je 14
High-Speed Ice Train (*C*) ..... Ag 57
Coefficient of Friction of Ice at High Speed—Application to a High Speed Train [70-WA/RR-3] (*A*) ..... Je 42
Motors, Outboard
Determining Critical Speeds of a Crankshaft-Flywheel Assembly for an Outboard Motor [71-Vibr-54] (*A*) ..... N 52
Mott, Gilbert C. appointed a corporate vice-president of Olin Corp. and president of its Aluminum Group ..... ? ..... S 97
Moulton, Clarence F. deceased ..... My 91
Mount, R. H. deceased ..... Je 80
Mountain Transit System
Sky-High Lifts (*OS*) ..... My 50
Mounteastle, Earle L. deceased ..... Mr 88
Moyer, D. W.
Taking the Systems Approach to Lubricating Machines [71-DE-49] (*A*) ..... Ag 47
Mueller, H. K.
Crack Propagation in a Linearly Viscoelastic Strip [71-APM-B] (*A*) ..... O 59
Muenchow, H. O.
A 1000-MWe LMFBR Steam Generator [71-NE-13] (*A*) ..... Jl 43
Mufflers
Checking Muffler Noise Levels (*OS*) ..... Ag 43
Muhr, Ernst
Ilha Solteira (*C*) ..... Jl 52
Muller, P. C.
Theoretical and Experimental Optimisation of a High-Speed Rotor [70-WA/Aut-11] (*A*) .... F 70
Mullikin, H. F.
Combined Cycle (*C*) ..... N 61
Multhaup, Robert H. appointed to newly established vice-presidency of planning for M. W. Kellogg Co., Houston, a division of Pullman Inc. ..... My 88
Municipal Utility Districts
See Utility Districts
Mura, T.
Displacement and Plastic Distortion Fields Produced by Dislocations in Anisotropic Media [71-APM-17] (*A*) ..... S 56
Murdock, James W.
ASME Performance Test Codes Committee PTC-2 on Definitions and Values Report on Proposed Code of Definitions and Values [70-WA/PTC-2] (*A*) ..... My 52
Murdock, John W.
A Solution of Shock-Induced Boundary-Layer Interaction Problems by an Integral Method [71-APM-31] (*A*) ..... S 56
Murphy, Alvin H.
Identifying the Engineer (*C*) ..... Ap 66
Murphy, Glenn receives Distinguished Engineering Alumnus Achievement Award of University of Colorado Engineering Development Council ..... Je 78; Jl 74
Murphy, J. H.
Sectionalized Compressible and Momentum Integral Models for Channel Hydrodynamics [71-HT-14] (*A*) ..... O 61
Murphy, J. J. receives Outstanding Leadership Award from Metropolitan Section of ASME Jl 75
Murray, D. L.
Low Cost Short Life Gas Turbine Design [71-GT-69] (*A*) ..... Jl 40
Murray, R. W.
Integrated Waste Management-Water System Using Radioisotopes for Thermal Energy [71-Av-4] (*A*) ..... O 55
Murray, W. H. deceased ..... N 93
Muscles
"Talking" Muscles (*BTR*) ..... F 52
Mutter, E. C. deceased ..... Ag 87
MUX20000
Electronic Super Guard (*BTR*) ..... N 40
Mylonas, C.
The Separation of Membrane and Bending Shears in Shell with Two Birefringement Coatings [70-WA/APM-28] (*A*) ..... Je 46

N

Nachman, J. F.
Exploitation of Cu-Rich Damping Alloys
Part 1—The Search for Alloys with High Damping at Low Stress [71-Vibr-106] (*A*) ..... D 54
Nagib, M. M.
Combined Helium and Steam Cycle for Nuclear Power Plants [based on 70-WA/NE-3] Ag 14
Combined Cycle (*C*) (*AC*) ..... N 61
A Combined Helium and Steam Cycle for Nuclear Power Generation [70-WA/NE-3] (*A*) My 55
Naidu, V. S. R.
Thyristor Power Systems and Their Applications [71-DE-11] (*A*) ..... Jl 45
Nakase, Yoshiyuki
An Analysis of Flow Through a Mixed Flow Impeller [71-GT-2] (*A*) ..... Ag 44
A Blade Theory of an Impeller with an Arbitrary Surface of Revolution [71-GT-17] (*A*) ..... Jl 36
Nakayama, N.
Grinding Wheel Elasticity [70-WA/Prod-21] (*A*) Mr 62
Nakra, B. C.
Structural Damping Using a Four Layer Sandwich [71-Vibr-20] (*A*) ..... N 49
Nanbu, K.
Flow in Rotating Straight Pipes of Circular Cross Section [70-WA/FE-13] (*A*) ..... F 73
Nash, J. F.
An Explicit Scheme for the Calculation of Three-Dimensional Turbulent Boundary Layers [71-FE-19] (*A*) ..... S 51
Nashif, A. D.
Attenuation of Vibrational Amplitudes Through the Use of Multiple-Layered Damping Treatments [71-Vibr-40] (*A*) ..... N 51
The Effect of Stringer Width and Damping on the Response of Skin-Stringer Structures [71-Vibr-101] (*A*) ..... D 54
Nash-Webber, J. L.
An Instrument for Skin-Friction Measurements in Thin Boundary Layers [71-FE-27] (*A*) ..... S 52
Nathan, G. K.
A Study of Contrarotating Turbines Based on Design Efficiency [70-WA/FE-17] (*A*) ..... F 73
National Academy of Engineering
See United States
National Aeronautics and Space Administration
See Astronauts; News; United States
National Bureau of Standards
See United States
National Coal Association
Annual Convention
54th, 1971
NCA Convention Speakers (*NB*) ..... Ag 67
Bituminous Coal Research
Gas from Coal Essential (*NB*) ..... N 68
Fast Breeder Reactors (*NB*) ..... Ja 63
National Commission of Libraries and Information Science
See United States
National Electrical Manufacturers Association
Silencing Considerations for Large Gas Turbine Generator Sets [71-GT-26] (*A*) ..... Ag 45
National Engineers Week
National Engineers Week Salutes Members of the Profession (*NB*) ..... D 63
National Registry for Engineers
Established by U. S. Labor Department's Manpower Administration
Registry Information Available for Engineer Job Seekers ..... F 95
National Science Foundation
See United States
National Society of Professional Engineers
ASME-NSPE Agreement Operating at Top Speed
ASME Members May Select Degrees of NSPE Participation (*NB*) ..... N 67
Engineer Income Level (*NB*) ..... Ap 72
Engineering Employment Practices
NSPE Cosponsor of 2-Day Conference, 1971
Preview ..... My 76
Review ..... Ag 64
Labor Department Registry (*NB*) ..... Ja 63
National Engineers Week (*NB*) ..... O 72
NSPE and ASME Enter Agreement on Membership and Services ..... Jl 62
Unifying the Profession (*C*) ..... O 66
NSPE–IEEE Agreement (*NB*) ..... Je 58
NSPE Recommends Plan for Administering Fund for Unemployed Engineers ..... Je 56
Employment Practices (*C*) ..... O 65
NSPE Urges Conversion Assistance (*NB*) ... Je 58
Professional Identity Committee
Identifying the Engineer
Needed: Unification of the Engineering Profession ..... Ja 20
Identifying the Engineer (*C*) ..... Mr 66, Ap 66, Je 51, Ag 57
Professional Society (*C*) ..... F 77
21st Century? (*C*) ..... F 78
United Attack Underway on Engineering Unemployment ..... Jl 63
Employment Practices (*C*) ..... O 64
National Technical Information Service
See United States Commerce Department
Natural Gas
Arctic Pipeline (*BTR*) ..... O 47
Experience with Gas Turbines as Prime Movers for Underground Storage of Natural Gas [71-GT-27] (*A*) ..... Jl 36
Gas from Coal Essential (*NB*) ..... N 68
Marine Installation of a Gas Fired Turbine for Cryogenic Gas Processing [71-GT-28] (*A*) Jl 36
Natural Gas Fuel Tanks for Automobiles: Safety Problems [71-PVP-62] (*A*) ..... S 50
The Use of Gas Turbines in Gas Pipeline Service in Western Canada—Present and Future [71-GT-37] (*A*) ..... Jl 38
World Energy Press Conference Heralds in Era of Cooperation—Gone Is Era of Competition (*NB*) N 63
Natural Gas Industry
ASME Panel Examines Progress and Current Needs in Gas Turbine Codes and Standards Ap 77
Naulty, Charles J. western regional coordinator for Link-Belt Products Div., FMC Corp., assumes additional responsibility as manager of San Francisco sales office ..... Je 77
Naval Experimental Manned Observatory (NEMO)
Acrylic Pressure Hull for Submersible NEMO [71-UnT-2] (*A*) ..... D 46
Behavioral and Stress Analysis of the NEMO Type Acrylic Hulls [70-WA/UnT-8] ..... Je 45
Fabrication of NEMO Type Spherical Acrylic Capsules for Underwater Vehicles [70-WA/UnT-4] (*A*) ..... Je 45
Navier-Stokes Equations
Flow Over an Oscillating Plate with Suction or with an Intermediate Film: Two Exact Solutions of the Navier-Stokes Equations [70-WA/APM-22] (*A*) ..... My 59
Navigation
Lunar Dead Reckoning (*BTR*) ..... Jl 25
To Reduce Midair Collisions (*NB*) ..... N 68
Nayfeh, A. H.
Electromagneto-Thermoelastic Plane Waves in Solids with Thermal Relaxation [71-APMW-5] (*A*) ..... N 55
Surge Waves in Stranded Springs [71-Vibr-94] (*A*) D 53
Neal, R. C.
Does Man's Release of Energy Contribute to the Melting of the Polar Ice Caps or Does It Move the Earth Toward Another Ice Age? [70-WA/APC-1] (*A*) ..... F 68
Nechi, A. J.
A Relaxation and Gradient Combination Applied to the Computer Simulation of a Plane Four-Bar Chain [70-Mech-20] (*A*) ..... Ja 48

Neely, James V. of Bellevue, Wash., establishes a nuclear power consulting service for electric utilities and other companies involved in planning, designing, or constructing nuclear power facilities....D 80
Negroni, F.
An Approach to Die Design in Extrusions [70-WA/Prod-16] (*A*)....Mr 61
Nelkin, Dorothy (*author*)
"Nuclear Power and Its Critics" (*BR*)....D 57
Nelson, D. B.
Some Considerations in Design, Specification, and Evaluation of Digital Control System for Random Vibration Testing [71-Vibr-30] (*A*)...N 50
Nelson, D. J.
21st Century? (*C*)....F 78
Nelson, F. C.
Relationship Among Frequency, Amplitude, Damping and Human Awareness for Floor Vibration Due to Impact [71-Vibr-44] (*A*)....N 51
Nelson, H. D.
Dynamic Stability of a Beam Carrying Moving Masses [71-APM-M] (*A*)....O 59
Nelson, N.
An Improved Finite Difference Method Applied to Thin Shells [71-PVP-24] (*A*)....Ag 52
Nelson, William G.
Space Station Life Support System Definition [71-Av-13] (*A*)....O 55
Nemat-Nasser, S.
Electromagneto-Thermoelastic Plane Waves in Solids with Thermal Relaxation [71-APMW-5] (*A*)....N 55
NEMO
See Naval Experimental Manned Observatory
Neptunium
Shortest Lifetime Ever Recorded (*BTR*)....Ja 37
Ness, D. J.
Resonance Classification in a Cubic System [71-APM-24] (*A*)....S 57
Netherlands
Pollution Warning System (*OS*)....Ap 53
Networks
Operational Logistics in an Air Pollution Monitoring Network [70-WA/PTC-3] (*A*)....My 52
Neutralizers
Theory of the Dynamic Vibration Neutraliser with Motion-Limiting Stops [71-APMW-14] (*A*) N 56
Neutron Radiography
Neutron Radiography....Jl 21
Nevill, G. E. receives ASME Council certificate of award in recognition of faithful services to ASME as chairman of ad hoc Metric Study Committee during 1970....Jl 74
Nevins, Ralph G. receives Charles Russ Richards Memorial Award at 1970 WAM Ja 74, 75; receives a University of Illinois College of Engineering alumni honor award for distinguished service....Ag 85
New York
"Heat Picture" of N. Y. Waters (*BTR*)....Ja 33
Republic Airport Transportation Center at Farmingdale, N. Y.
Plan for Transportation Complex (*NB*)....O 73
New York City
Department of Air Resources
Bright Future Predicted for Gas Turbine (*BTR*) S 37
Plastics and Ecology (*BTR*)....N 41
New York University
Noise Control Laboratory Established (*EB*) My 77
Occupational Biomechanics (*BN*)....O 75
Newman, L. B.
Free-Stream Turbulence Effects on Local Heat Transfer from a Sphere [71-HT-8] (*A*)....O 61
Newmark, Nathan M. to receive ASME Honorary Membership at 1971 Winter Annual Meeting....S 89
News
ASME News....Ja 68; F 94; Mr 78; Ap 77; My 80; Je 64; Jl 62; Ag 74; S 88; O 79; N 74; D 73
Briefing the Record....Ja 31; F 47; Mr 45; Ap 43; My 43; Je 28; Jl 25; Ag 34; S 36; O 42; N 37; D 35
Education News....Ja 64; F 90; Mr 74; Ap 73; My 77; Je 60; Jl 58; Ag 68; S 82; O 74; N 70; D 68
ME News Roundup....Ja 61; F 83; Mr 69; Ap 71; My 73; Je 55; Jl 55; Ag 61; S 77; O 69; N 63; D 63
NASA Tech Briefs....Ja 34; F 50; Mr 46; Ap 46; My 46; Je 30; Jl 30; Ag 36; S 40; O 44; N 38; D 38
News Briefs....Ja 62; Mr 72; Ap 72; My 76; Je 58; Ag 67; S 81; O 72; N 68; D 66
Overseas Survey....Ja 40; F 62; Mr 52; Ap 52; My 50; Je 38; Jl 34; Ag 42; S 46; O 52; N 44; D 44
People in the News....Ja 104; F 101; Mr 84; Ap 85; My 88; Je 77; Jl 74; Ag 85; S 97; O 89; N 89; D 80
Photo Briefs....Ja 38; F 60; Mr 54; Ap 50; My 48; Je 36; Jl 32; Ag 40; S 44; O 50; N 46; D 42
Newtonian Laws of Physics
Relativity and the Mechanical Engineer (*C*) Je 51
Nicholas, T.
Attenuation of Vibrational Amplitudes Through the Use of Multiple-Layered Damping Treatments [71-Vibr-40] (*A*)....N 51
Nichols, E. B. deceased....O 91
Nichols (Percy) Award
See Honors
Nicholson, Ezra K. deceased....Mr 88
Nickel
Embrittlement of Precipitation Hardenable Nickel-Base Alloys by Oxygen [71-Met-D] (*A*)...Ag 48
Nickel Consumption [1971 outlook] (*NR*)....F 84
World-Round Nickel Research (*PB*)....Mr 54, 55
Nicoll, W. B.
Heat and Mass Transfer in an Incompressible Turbulent Boundary Layer [71-HT-10] (*A*) O 61
Nicolls, W. R.
Photoelastic Study and Fatigue Tests of a Contoured, Integrally Reinforced Branch Connection [71-PVP-5] (*A*)....Ag 50
Nikiforuk, P. N.
Some Further Contributions to the Dynamic Sensitivity of the Parameter Perturbation Process [70-WA/Aut-5] (*A*)....F 69
Nilsen, A. W.
On the Measurement of Fluctuating Pressure in the Mixing Zone of a Round Jet [71-FE-31] (*A*) S 53
Nimmo, Bruce
Growth ≠ Progress (*C*)....Jl 50
Nina, M. N. R.
The Effectiveness of Film Cooling with Three-Dimensional Slot Geometries [71-GT-11] (*A*) Jl 36
Nippon Bailey KK
Joint Venture Formed (*NB*)....Je 59
Nisenson, Stanley M. reelected president of Brooklyn Polytechnic Alumni Association for 1971–1972 academic year....N 89
Nishikawa, K.
Analysis of Turbulent Forced-Convection Heat Transfer to a Supercritical Fluid [71-HT-26] (*A*) O 62
Free-Convective Heat Transfer to a Supercritical Fluid [71-HT-27] (*A*)....O 62
Nishiwaki, Hideo
Some Observations on the Velocity Profiles in Fully Developed Viscous Flow in Turbomachines [70-WA/FE-24] (*A*)....F 74
Nishiyama, T.
Linearized Potential Flow Models for Hydrofoils in Supercavitating Flows [71-FE-12] (*A*) Ag 55
Nitrate
Counterattack on Methemoglobinemia (*BTR*) Mr 51
Nitric Oxide
Noise Abatement in Industry
Engine Combustion and Noise
The Influence of Turbulence and Compounding on Unburned Hydrocarbons and Nitric Oxide in the Combustion Products from Internal Combustion Engines [70-WA/DGP-2] (*A*)....Ap 57
Nitrogen
Cleaner Fuel Through Nitrogen Inserting [71-GT-45] (*A*)....Jl 38
Velocity and Temperature Profiles in Near-Critical Nitrogen [71-HT-23] (*A*)....O 62
Nitrogen, Liquid
Film Boiling Transition Temperature for Tissue Cooled with Liquid Nitrogen [70-WA/HT-16] (*A*)....Ap 60
Nitrogen Oxides
NO_x Emissions at Low Excess-Air Levels in Pulverized-Coal Combustion [70-WA/APC-3] (*A*) F 68
Noise Abatement in Industry
Gas Turbine Noise Abatement
Formation and Measurements of Nitrogen Oxides in Gas Turbines [70-WA/GT-3] (*A*) Ap 56
Reduction of Nitrogen Oxides from Gas Turbines by Steam Injection [71-GT-58] (*A*)....Ag 46
A Survey of Nitrogen-Oxides Control Technology and the Development of a Low NO_x Emissions Combustor [70-WA/Pwr-2] (*A*)....My 54
Noble, J. J.
Mathematical and Experimental Modeling of the Circulation Patterns in Glass Melts [70-WA/HT-11] (*A*)....Ap 59
Nocturnal Happenings
Digital Simulation of Nocturnal Production of a Solar Still [70-WA/Sol-6] (*A*)....F 65
Nofsinger, Charles W. elected Fellow ASME N 91
Noise
Cavity Resonance in Fractional Horsepower Refrigerant Compressors [71-Vibr-88] (*A*)..N 54
Checking Muffler Noise Levels (*OS*)....Ag 43
Combustion Noise and Its Control in Process Plant Furnaces [71-Pet-6] (*A*)....D 47
Discrete Frequency Noise from Lifting Fans [71-GT-12] (*A*)....Jl 36
Effect of Manifold Tuning on Performance of Engines [71-Vibr-104] (*A*)....D 54
EJC Technical Information Seminar Gets Earful on Noise Pollution Control (*NR*)....Mr 70
Engineering a Better Environment
1: Environmental Dangers Challenge Design Engineers [based on 70-DE-79]
Compatibility (*C*)....F 77
Conserving Water (*C*)....Ja 56
6: Industrial Noise Control—Past, Present, and Future [based on 70-PEM-29]....Ap 29
Low-Noise Flow Valve (*NTB*)....O 45
Meeting Europe's Low Noise Requirements for Compressor Stations [71-GT-87] (*A*)....Jl 41
Noise Abatement in Industry
Engine Combustion and Noise
The Influence of Turbulence and Compounding on Unburned Hydrocarbons and Nitric Oxide in the Combustion Products from Internal Combustion Engines [70-WA/DGP-2] (*A*)....Ap 57
Mechanical Aspects of Gear-Induced Noise in Complete Power Train Systems [70-WA/DGP-1] (*A*)....Ap 57
Origins of Reciprocating Engine Noise—Its Characteristics, Prediction, and Control [70-WA/DGP-3] (*A*)....Ap 58
Gas Turbine Noise Abatement
Formation and Measurements of Nitrogen Oxides in Gas Turbines [70-WA/GT-3] (*A*) Ap 56
Future Trends in Aircraft Engine Noise Research [70-WA/GT-13] (*A*)....Ap 57
Noise Considerations in High Bypass Ratio Fan Engine Design [70-WA/GT-14] (*A*) Ap 57
On the Noise from Jet Diffusers [70-WA/GT-5] (*A*)....Ap 56
Some Results of Fan/Compressor Noise Research [70-WA/GT-12] (*A*)....Ap 56
Some Results of Recent Research on Fan and Jet Noise [70-WA/GT-15] (*A*)....Ap 57
The Sound of Gas-Turbine Installations [70-WA/GT-6] (*A*)....Ap 56
Utility Applications for Advanced Gas Turbines to Eliminate Thermal Pollution [70-WA/GT-9] (*A*)....Ap 56
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Application of a Disorder Measure to Acoustical and Structural Models [70-WA/DE-1] (*A*)....F 65, Ap 55
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Multiple Excitations of Structures and Enclosures [70-WA/DE-8] (*A*) F 66, Ap 55
Response and Internal Noise of a Fuselage to Random Excitation [70-WA/DE-9] (*A*) F 66, Ap 55
Response of Structures to Nonhomogeneous Random Pressure Fields [70-WA/DE-11] (*A*)....F 66, Ap 56
Sound and Vibration Transmission Through Panels and Tie Beams Using Statistical Energy Analysis [70-WA/DE-2] (*A*) F 65, Ap 55
Sound Transmission Through an Elastic Enclosure Acoustically Closely Coupled to a Noise Source [70-WA/DE-12] (*A*) F 67, Ap 56
Underwater Behavior of Free-Loaded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
Vibration Response and Wave Propagation in Periodic Structures [70-WA/DE-3] (*A*) F 65, Ap 55
Noise Abatement and Its Control in the Petroleum Industries
Design and Performance of High-Pressure Blowoff Silencers [70-WA/Pet-1] (*A*) Ap 54
Energy Transmission in Piping Systems and Its Relation to Noise Control [70-WA/Pet-3] (*A*)....Ap 54

Noise (*Continued*)
Machinery Noise May Indicate Loss of Efficiency and Severity of Dynamic Stresses [70-WA/Pet-2] (*A*) ..... Ap 55
Refinery Flair System Injectors Redesigned for Noise Control [70-WA/Pet-4] (*A*) .... Ap 55
Noise Study of Fractional Horsepower, Rotary Vane, Refrigerant Compressor [71-Vibr-89] (*A*) N 54
Radiation and Response of Cylindrical Beams Excited by Sound [71-Vibr-84] (*A*) ..... D 52
Reducing Factory Noise (*OS*) ..... N 44
Shock Wave Behavior in Transonic Compressor Noise Generation [71-GT-7] (*A*) ..... Ag 44
Silencing Considerations for Large Gas Turbine Generator Sets [71-GT-26] (*A*) ..... Ag 45
The Sky Above the Noise Below (*EN*) ..... Je 60
Some Sound Research (*BTR*) ..... Ag 34
Using Viscoelastic Coatings to Reduce Structure-Borne Noise into a Fluid [71-Vibr-29] (*A*) .. N 50
Whoosh Shusher (*PB*) ..... Ag 40
Nolte, Claude B. appointed corporate consultant for Yarway Corp., Blue Bell, Pa., and its wholly owned subsidiary, Kingmann-White ..... My 88
Nolte, K. G.
A Linear Compressibility Assumption for the Multiple Integral Representation of Nonlinear Creep of Polyurethane [70-WA/APM-6] (*A*) .... My 57
Nondestructive Testing
Fracture Mechanics and Nondestructive Testing of Brittle Materials [71-PVP-4] (*A*) ..... Ag 50
Neutron Radiography J1 21
Nondestructive Sonic Testing of Adhesive-Bonded Composites (*NTB*) J1 30
Ultrasonic Inspection of Fusion Butt Welds (*NTB*) Mr 47
Using Laser Holography for Nondestructive Testing ..... Mr 27
Nonequilibrium
See Equilibrium
Nonhomogeneity
Noise Abatement in Industry
Interaction of Sound and Structures
Response of Structures to Nonhomogeneous Random Pressure Fields [70-WA/DE-11] (*A*) ..... F 66, Ap 56
Nonlinear Systems
See Systems, Nonlinear
Nonlinearity
Determination of the Duration of Memory for Viscoelastic Materials [70-WA/APM-4] (*A*) My 57
Experimental Determination of Some Kernel Functions in the Multiple Integral Method for Nonlinear Creep of Polyvinyl Chloride [70-WA/APM-21] (*A*) ..... My 59
Frequency Response of Fluid Lines with Nonlinear Boundary Conditions [70-WA/FE-6] (*A*) F 72
A General Nonlinear Relaxation Iteration Technique for Solving Nonlinear Problems in Mechanics [70-WA/APM-43] (*A*) ..... Je 48
A Linear Compressibility Assumption for the Multiple Integral Representation of Nonlinear Creep of Polyurethane [70-WA/APM-6] (*A*) My 57
Nonlinear Dynamic Response of Elastic Slider-Crank Mechanism [70-Mech-39] (*A*) ..... Ja 50
Nonlinear Effects in the Collapse of a Nearly Spherical Cavity in a Liquid [71-FE-5] (*A*) Ag 54
Nonlinear Vibrations of a Beam Under Harmonic Excitation [70-WA/APM-13] (*A*) ..... My 58
Nonlinear Vibrations of a Buckled Beam Under Harmonic Excitation [70-WA/APM-48] (*A*) Je 48
On the Nonlinear Vibrations of Free-Free Beams [70-WA/APM-55] (*A*) ..... Je 49
Wave-Front Stress Relaxation in a One-Dimensional Nonlinear Inelastic Material with Temperature and Position Dependent Properties [70-WA/APM-20] (*A*) ..... My 58
Norgard, J. S.
Stresses in a Pressurized Ribbed Cylindrical Shell with a Reinforced Circular Hole Interrupting a Rib [71-PVP-8] (*A*) ..... Ag 51
Norman, George C. deceased ..... Mr 88
Norrie, D. H.
The Application of the Finite-Element Technique to Potential Flow Problems [71-APM-22] (*A*) S 57
Norris, E. B.
Repair of Primary Pressure Systems Piping in a Nuclear Power Plant [71-PVP-50] (*A*) Ag 50, S 48
Norris, Edward W. deceased ..... Ap 88
North America
Gas Turbines for Pipeline Compressor Drives in North America and Europe [71-GT-35] (*A*) J1 38
Notches, Notching
An Analytical Basis for Notch Sharpening by Fatigue [71-PVP-46] (*A*) ..... Ag 53
Notch-Ductility Transition of Structural Steels of Various Yield Strengths [71-PVP-19] (*A*) Ag 52
Stress Concentration Around a Hyperboloidal Notch Under Tension in a Transversely Isotropic Material [70-WA/APM-24] (*A*) ... My 59
Vee-Notch Tool Cuts Specimens (*NTB*) .... Mr 47
Nowak, E. S.
An Analytical Investigation of Free Convection Heat Transfer to Supercritical Water [70-WA/HT-6] (*A*) ..... Ap 58
An Experimental Investigation of the Enthalpy of Saturated Heavy-Water Liquid [71-HT-M] (*A*) N 59
Nowinski, J. L.
Propagation of Longitudinal Waves in Circularly Cylindrical Bone Elements [71-APM-5] (*A*) S 55
Nozzles
Analysis of Nozzle-Thrust Misalignment (*NTB*) Mr 46
Analytical Investigations of Compact Reinforcement for Radial Nozzles in Spherical Shells [71-PVP-26] (*A*) ..... Ag 52
Chemical Nonequilibrium in Supersonic Nozzle Flow [71-FE-8] (*A*) ..... Ag 54
The Effect of Droplet Solidification Upon Two-Phase Nozzle Flow [71-FE-11] (*A*) ..... Ag 54
The Effect of Heat Transfer on the Flow of High Temperature Glass Through Small Nozzles [70-WA/HT-12] (*A*) ..... Ap 59
Experimental Stress Analysis of the Attachment Region of Hemispherical Shells with Single Attached Nozzles [71-PVP-41] (*A*) ..... S 48
Experiments on the Plastic Limit Behavior of Shell-Nozzle Junctures Subjected to Nonsymmetric Loading [71-PVP-45] (*A*) ..... Ag 53
Liquid Wire (*BTR*) J1 28
Lower Bound to Limit Pressure of Nozzle-to-Cylindrical Shell Attachment [71-PVP-38] (*A*) Ag 53
The Stress Analysis of Plates with Single and Clustered Nozzles by the Boundary Point Least Squares Method [71-PVP-20] (*A*) ..... Ag 52
Turbulent Boundary Layer and Heat Transfer Measurements Along a Convergent-Divergent Nozzle [71-HT-4] (*A*) ..... O 61
The Two-Phase Critical Flow of One-Component Mixtures in Nozzles, Orifices, and Short Tubes [70-WA/HT-5] (*A*) ..... Ap 58
NTISearch
Information Retrieval (*NB*) ..... O 73
Nuclear Engineering
See also Reactors
"A" Plant Orders Double (*BTR*) J1 27
Air Monitoring with the Alpha Particle (*BTR*) Ap 44
Approximate Evaluation of Dynamic Load Factors for Certain Types of Loadings [70-WA/NE-2] (*A*) ..... My 55
Atomic-Powered Space System (*BTR*) ..... F 57
Combined Helium and Steam Cycle for Nuclear Power Plants [based on 70-WA/NE-3] Ag 14
Combined Cycle (*C*) (*D*) (*AC*) ..... N 61
A Combined Helium and Steam Cycle for Nuclear Power Generation [70-WA/NE-3] (*A*) My 55
Engineering a Better Environment
4: An Engineer Looks at the Energy Dilemma F 40
The Energy Dilemma (*C*) ..... Je 50
Operation Arctic (*C*) ..... Ap 68
7: The Environment-Energy Balance: Needed Actions ..... My 33
Environment-Energy Balance (*C*) J1 51, Ag 56
Experience with Sodium-Heated Steam Generator [71-NE-15] (*A*) J1 44
Fast Reactor Conferees Told '71 Year of Decision for Plutonium Reactor ..... Je 68
Flow Transient Resulting from a Loss of Pumping Power in a Pressurized Water Nuclear Reactor [70-WA/NE-4] (*A*) ..... My 55
Gas-Cooled Fast Reactor Refueling System [71-NE-8] (*A*) ..... S 57
In-Service Inspection of San Onofre Nuclear Generating Station
Unit 1 [71-PVP-51] (*A*) ..... S 48
Units 1, 2, and 3 [70-WA/NE-5] (*A*) .... My 55
More N-Power (*OS*) ..... D 45
Nuclear Fusion Research (*EN*) ..... N 70
Nuclear Power
"Nuclear Power and Its Critics" (*BR*) ..... D 57
"Nuclear Power and the Public" (*BR*) .... D 57
Nuclear Power Expansion (*OS*) ..... Je 39
Nuclear Power Growth Challenges AEC Enriched Uranium Production Capacity ..... My 74
The Nuclear Survey Team and How It Works D 76
Rancho SECO Quality Assurance Program [70-WA/NE-1] (*A*) ..... My 55
Tracer Tests for Nuclear Power Plant Steam Turbines [based on 69-WA/PTC-3] ..... Ja 15
UN Conference in Geneva on Peaceful Uses of Atomic Energy Stresses Atoms for Development (*NE*) ..... N 64
World Energy Press Conference Heralds in Era of Cooperation—Gone Is Era of Competition (*NE*) N 63
Numerical Methods
A Computer Algorithm to Design Compound Gear Trains for Arbitrary Ratio [70-Mech-31] (*A*) ..... Ja 49
Numerical and Computer Methods in Structural Mechanics International Symposium, 1971 Preview J1 70
Numerical Computation of Spherical Waves in Two Viscoelastic Media [71-APMW-23] (*A*) N 57
Numerical Determination of the Response of a Linear System with a Singular Mass Matrix [71-Vibr-10] (*A*) ..... N 48
A Numerical Method and Higher Approximations for a Self-Acting, Gas-Lubricated Bearing of Finite Length [70-Lub-23] (*A*) ..... Ja 45
Numerical Method for Determining Stress Intensity Factors of an Interior Crack in a Finite Plate [71-Met-L] (*A*) ..... S 54
A Numerical Method for Predicting the Pressure History of a Sonic Boom Wave Incident on Arbitrarily Oriented Plane Walls [70-WA/APM-9] (*A*) ..... My 57
A Numerical Solution for Natural Convection in Cylindrical Annuli [70-WA/HT-9] (*A*) ... Ap 59
A Numerical Study of the Flow in the Vortex Angular-Rate Sensor [70-WA/FE-5] (*A*) ... F 72
A Numerical Technique for the Calculation of Transonic Flows in Turbomachinery Cascades [71-GT-42] (*A*) J1 38
Short Courses Offered on ELAS Program at Duke (*EN*) ..... D 69
Nutant, J. A.
Beneficial Uses of Waste Heat [70-WA/Ener-10] (*A*) ..... Ap 62
Nutt, Harold V. granted Meritorious Civilian Service Award for distinguished service as special assistant for scientific affairs to Commander, U. S. Naval Forces, Vietnam .. F 101
Nuttall, C. J., Jr.
Traction Limits for Tracked Vehicles Crawling the Sea Bottom [70-WA/UnT-2] (*A*) ..... Je 45
Nuttall, L. J.
General Electric Company Solid Polymer Electrolyte Water Electrolysis System [71-Av-9] (*A*) O 55

O

Oak Ridge National Laboratory
Oak Ridge Ecology Facility (*NB*) ..... Ag 67
Oakley, A. W. deceased ..... O 91
Oates, G. C.
An Instrument for Skin-Friction Measurements in Thin Boundary Layers [71-FE-27] (*A*) ..... S 52
O'Brien, R. J.
The Transition Requirements from Engineer to Entrepreneur—Where Management Goes Wrong [71-DE-24] (*A*) J1 46
Obrig, Adolph deceased ..... Ja 107
Observability
Remarks on Observability and Its Application to Nonlinear and Distributed Parameter Systems [70-WA/Aut-10] (*A*) ..... F 70
Oceanology
Managing Ocean Resources (*OS*) ..... Je 38
The Response of Narrow-Mouthed Harbors in a Straight Coastline to Periodic Incident Waves [70-WA/APM-46] (*A*) ..... Je 48
O'Connor, E. W.
Computer Simulation of the Environmental/Thermal Control and Life-Support System for the Space Station Prototype [71-Av-34] (*A*) O 58
O'Donnell, W. J.
Effective Elastic Constants for Thick Perforated Plates with Square and Triangular Penetration Patterns [71-PVP-17] (*A*) ..... Ag 51
Offner, Walter W.
Employment Practices (*C*) ..... O 65
Offshore Technology
See also Honors
Coming: The Offshore A-Plant (*BTR*) ..... D 35
Controlled Sinking of Large Concrete Ocean Structures [71-UnT-6] (*A*) ..... D 47
Dynamic Tension Analysis of a Simple Lift System—A Computer Method [71-UnT-7] (*A*) D 47
56-in. (1.4-m) Steel Pipe (*OS*) ..... Ag 43
Photoelasticity Applied to Analysis of Tubular Connections for Offshore Structures [71-Pet-27] (*A*) ..... D 50
Reducing Oil Spills (*EN*) J1 38
Site Surveying for Ocean Floor Structures [71-UnT-8] (*A*) ..... D 47

Offshore Technology (*Continued*)
Submarine Pipeline (*OS*) ..... Jl 35
10,000 at 3rd Offshore Technology Conference Learn: Men May Soon Live and Work Under Sea; Hotels, Restaurants Being Designed .. Je 55
O'Hagan, John T. receives Outstanding Leadership Award from Metropolitan Section of ASME ..... Jl 75
Ohio State University Centennial Achievement award recipients include Carl W. Hall .. Ja 104
Oien, M. A.
Steady Motion of a Rigid Strip Bonded to an Elastic Half Space [70-WA/APM-56] (*A*) Je 49
Oil
See also Offshore Technology
Economics of Remote Data Processing for Oil and Gas Production [71-Pet-39] (*A*) ..... D 51
56-in. (1.4-m) Steel Pipe (*OS*) ..... Ag 43
Heavy Oil or Residual Oil—New Opportunity for the Utility Gas Turbine [71-GT-81] (*A*) ... Jl 41
Moving the Arctic Oil: Pipelines and the Pour Point ..... N 27
Operation Arctic ..... F 12
Operation Arctic (*C*) ..... Ap 68, S 60
Preparing Low Sulfur Residual Fuel Oils: What It Does to the Oil; What It Means to the Consumer [71-IPwr-9] (*A*) ..... S 54
Skimming Oil from Basins and Lagoons [based on 70-Pet-3] ..... Ap 24
Skimming Oil from Basins and Lagoons (*C*) Je 51
Two Years Experience in Handling and Burning No. 6 Low Sulfur Fuel Oil [71-IPwr-5] (*A*) .. S 53
Underwater Storage Tank (*OS*) ..... Mr 53
World Energy Press Conference Heralds in Era of Cooperation—Gone Is Era of Competition (*NR*) N 63
Oil Spills
Oil-Loving Garbage (*BTR*) ..... O 42
Reducing Oil Spills (*EN*) ..... Jl 58
Sea Brooms (*BTR*) ..... O 46
Oil Whip
Squeeze Film Bearing for the Elimination of Oil Whip [70-Lub-8] (*A*) ..... Ja 42
Olcott, T. M.
Design of a Spacecraft Contaminant Control System [71-Av-19] (*A*) ..... O 56
Old Guard Contest
See Contests
Oldenburger (Rufus) Medal
See Honors
Oleksa, S. A.
Multiply Separated Position Design of the Geared Five-Bar Function Generator [70-Mech-16] (*A*) Ja 47
Olin Mathieson Chemical Corp.
Agricultural Division
Olin's Five-Year Experience in Gas Turbine Operation [71-GT-64] (*A*) ..... Jl 39
Oliver, J. A.
A Concept for Generating Plant Control Rooms Utilizing Human Engineering System Design Criteria [71-Pwr-2] (*A*) ..... D 51
Olsen, O. L. deceased ..... N 93
Olson, R. G. deceased ..... Jl 78
Olt, Richard G. elected Fellow ASME ... Ag 86
Onaran, K.
Experimental Determination of Some Kernel Functions in the Multiple Integral Method for Nonlinear Creep of Polyvinyl Chloride [70-WA/APM-21] (*A*) ..... My 59
Onnen, John E. receives Meritorious Service Award at 1971 DGP Conference ..... Jl 67
Optics
See also Beryllium; Images, Imaging
Bubble Level as Pitch and Roll Sensor (*NTB*) O 44
Carriage-Rail Assembly for High-Resolution Mechanical Positioning (*NTB*) ..... D 38
A Gigabit per Second (*BTR*) ..... F 48
Light Benders (*PB*) ..... My 48
Listen at Him (*PB*) ..... D 43
Measurement of Optical Thickness (*NTB*) ... D 39
Noncontacting Optical Strain Device (*NTB*) My 47
Only a Light Assist (*PB*) ..... My 48, 49
Optical Analysis of Ball Bearing Starvation [70-Lub-19] (*A*) ..... Ja 44
Tell-Tale Bolt (*BTR*) ..... Jl 25
Optimization Methods
Process Optimization Control of Air Pollution [70-WA/APC-2] (*A*) ..... F 68
Theoretical and Experimental Optimization of a High-Speed Rotor [70-WA/Aut-11] (*A*) .... F 70
Thermal Control Optimization for Cylindrical Spacecraft [70-WA/Aut-13] (*A*) ..... F 70
Time Domain Optimization of a Vibration Absorber [70-WA/DE-5] (*A*) ..... F 66
Orbit
Using the Orbit to Balance Rotating Equipment [based on 70-Pet-30] ..... F 28
Orcutt, F. D.
Hot Isostatic Processing [based on 70-PVP-2] F 33
Orifices
Formulation of Equations for Orifice Coefficients [70-WA/FM-2] (*A*) ..... Ap 64
Generalized Contraction Coefficient of an Orifice for Subsonic and Supercritical Flows [70-WA/FM-1] (*A*) ..... Ap 64
Generalized Expansion Factor of an Orifice for Subsonic and Supercritical Flows [70-WA/FM-3] (*A*) ..... Ap 64
Influences of Size and Configuration on Cavitation in Submerged Orifice Flows [71-FE-39] (*A*) S 53
Transient Flow Measurements with Sharp-Edged Orifices [71-FE-30] (*A*) ..... S 52
The Two-Phase Critical Flow of One-Component Mixtures in Nozzles, Orifices, and Short Tubes [70-WA/HT-5] (*A*) ..... Ap 58
Orlandea, Nicolae
Contributions to the Determination of the Equations of Motion for Multidegree of Freedom Systems [70-Mech-29] (*A*) ..... Ja 48
Orlo Screw
Held Firm by Thread (*BTR*) ..... Ag 39
Orner, P. A.
A Design Procedure for a Class of Distributed Parameter Control Systems [70-WA/Aut-6] (*A*) F 69
Orning, A. A.
NO_x Emissions at Low Excess-Air Levels in Pulverized-Coal Combustion [70-WA/APC-3] (*A*) ..... F 68
Orr, Carol Lister receives ASME 50-year service pin ..... O 89
Ortega, O. J.
In-Service Inspection of San Onofre Nuclear Generating Station Units 1, 2, and 3 [70-WA/NE-5] (*A*) ..... My 55
Orthogonal Cutting
A Photoelastic Study of Stress Distribution During Orthogonal Cutting
Part 1: Workpiece Stress Distribution [70-WA/Prod-12] (*A*) ..... Mr 60
Part 2: Photoplasticity Observations [70-WA/Prod-13] (*A*) ..... Mr 60
Osborne, William C. elected Fellow ASME N 91
Oscillation
Analog and Digital Analysis and Synthesis of Oscillatory Tracks [71-Vibr-113] (*A*) ..... D 55
Development and Testing of Techniques for Oscillating Pressure Measurements Especially Suitable for Experimental Work in Turbomachinery [71-FE-28] (*A*) ..... S 52
The Forces on a Cylinder Oscillating Sinusoidally in Water [71-Pet-2] (*A*) ..... D 47
An Iterative Method for Analyzing Oscillating Cam Follower Motion [70-Mech-23] (*A*) .. Ja 48
Minimization of Mechanism Oscillations Through Flywheel Tuning [70-Mech-15] (*A*) ..... Ja 47
The Natural Frequencies of Two Spherical Bubbles Oscillating in Water [70-WA/FE-7] (*A*) .... F 72
Nonsimilar Solution of the Laminar Boundary Layer in an Oscillatory Flow by an Integral Matrix Method [71-FE-10] (*A*) ..... Ag 54
Particle Motion on Oscillating Conveyors
Part 1: The Equations of Motion and the Rules for Predicting Motion from Transitions [71-Vibr-15] (*A*) ..... N 49
Part 2: Practical Solutions to the Equations of Motion and the Extension of the Theory to Beds of Granular Material [71-Vibr-16] (*A*) ..... N 49
Theory of the Oscillating Viscometer for Slip Flow [71-APM-K] (*A*) ..... O 60
Thermal Effects in the Free Oscillation of Gas Bubbles [70-WA/FE-11] (*A*) ..... F 72
The Unsteady Wake of an Oscillating Cylinder at Low Reynolds Number [71-APM-33] (*A*) .. O 59
Osman, M. O. M.
The Method of Residues for the Synthesis of Coupler Curve Generating Mechanisms [70-Mech-53] (*A*) ..... Ja 51
A Proximity Perturbation Method for Linkage Kinematics [70-Mech-4] (*A*) ..... Ja 46
Osterman, Philip C. deceased ..... F 106
Ostrach, Simon
Power-Plant Siting (*C*) ..... D 57
Ostwald, P. F.
Modeling Dimensions and Tolerances by Simulation [71-DE-5] (*A*) ..... Jl 44
Ota, T.
Linearized Potential Flow Models for Hydrofoils in Supercavitating Flows [71-FE-12] (*A*) .... Ag 55
Othmer, Donald F. elected Fellow ASME Mr 86
Controlled Flash Evaporation ..... My 27
Moving the Arctic Oil: Pipelines and the Pour Point ..... N 27
Otocka, Edward A. re-elected to three-year term as an alumni representative on board of Stevens Institute of Technology .... Ja 105
Ottsen, H.
Behavioral and Stress Analysis of the NEMO Type Acrylic Hulls [70-WA/UnT-8] (*A*) .. Je 45
Output
A Newly Developed Output Detector for Fluidic Devices [70-WA/Flcs-7] (*A*) ..... Je 43
Outwater, John O. chosen "Engineer of the Year" for 1970 by Vermont engineering societies ..... Ap 85
Overseas Survey
See News
Owczarski, P. C.
Enhanced Evaporating Film Heat Transfer from Corrugated Surfaces [71-HT-33] (*A*) ..... N 57
Oximeter
Blood Pressure via the Ear (*BTR*) ..... N 37
Oxygen
See also Manned Space Station
Argon-Oxygen Process (*OS*) ..... My 50
Embrittlement of Precipitation Hardenable Nickel-Base Alloys by Oxygen [71-Met-D] (*A*) ... Ag 48
Oxygen for Astronauts (*NB*) ..... O 73
Oyen, Haakon C. F. appointed senior development engineer by De Laval Separator Co. Ag 85
Ozgur, C.
A Study of Contrarotating Turbines Based on Design Efficiency [70-WA/FE-17] (*A*) ..... F 73
Ozker, M. Sacid appointed educational relations engineer in Detroit Edison Co.'s employee relations department ..... F 101

P

Packaging
Plastics and Ecology (*BTR*) ..... N 41
Trouble-Free Sealing (*BTR*) ..... N 43
Pads
Nonlinear Response of Gas-Lubricated Shrouded Rayleigh-Step Thrust Pad [71-Vibr-75] (*A*) D 52
Page, J. E. deceased ..... N 93
Page, Robert H. elected Fellow ASME My 89; receives Fellow ASME certificate ..... D 82
Paget, J. A.
Gas-Cooled Fast Reactor Refueling System [71-NE-8] (*A*) ..... S 57
Paine, H. W. deceased ..... N 93
Painting
Painting of Plastics [71-DE-36] (*A*) ..... Ag 46
Palazotto, A. N.
An Investigation of Springback in Wire Products [71-Prod-3] (*A*) ..... Jl 48
Palit, D.
Contact Ratio of Worm Gears [70-Mech-49] (*A*) Ja 51
Palletization
Swing Shift Lift Truck (*PB*) ..... Jl 32, 33
Palmer, J. H.
Your Professional License—An Opportunity (*Ed*) O 19
Palmer, W. B.
Selecting the Economic Driver System for Large Compressors [71-Pet-32] (*A*) ..... D 50
Palusamy, S.
Experiments on the Plastic Limit Behavior of Shell-Nozzle Junctures Subjected to Nonsymmetric Loading [71-PVP-45] (*A*) ..... Ag 53
Pamidi, P. R.
Closed-Form Displacement Relations of a Five-Link R-R-C-C-R Spatial Mechanism [70-Mech-35] (*A*) ..... Ja 49
Roberts' Cognate of Space Five-Link RHHHH and HHRHH Mechanisms [70-Mech-36] (*A*) Ja 49
Pan, Y. S.
Creep Buckling of Thin-Walled Circular Cylindrical Shells Subject to Radial Pressure and Thermal Gradients [70-WA/APM-8] (*A*) My 57
Pan American Standards Commission (COPANT)
1970 Standards Catalog Offered Free by ANSI (*TL*) Mr 77
Pandolfini, P. P.
An Examination of Eddy Viscosity Models for Turbulent Free Shear Flows [71-FE-17] (*A*) Ag 55
Panels, Flat
The Influence of a Free Surface on the Hydroelastic Stability of a Flat Panel [71-APM-16] (*A*) S 56
Pao, Y. C.
Bounds on the Maximum Contact Stress of an Indented Elastic Layer [71-APM-E] (*A*) ... O 60
Paoletti, R. J. deceased ..... N 93
Papailiou, K.
On the Behavior of Bladings in the Small Reynolds Number Regime [70-WA/GT-11] (*A*) .... My 56
Parameter Methods
Bending of Cylindrical Shells by Initial Parameter Method [70-WA/PVP-2] (*A*) ..... F 75

Parameter Methods (*Continued*)
A Computer-Oriented, Parameter-Space Approach to the Synthesis of Nonlinear Control Systems [70-WA/Aut-4] (*A*) ..... F 69
On the Correlation of Analytical and Experimental Free Shear Layer Similarity Profiles by Spread Rate Parameters [70-WA/FE-12] (*A*) ..... F 72
Some Further Contributions to the Dynamic Sensitivity of the Parameter Perturbation Process [70-WA/Aut-5] (*A*) ..... F 69
Parameter Tuning of Linear DDC Algorithms [70-WA/Aut-16] (*A*) ..... F 70
Parce, Joseph Y. elected Fellow ASME .. Mr 86
Parker, D. M.
Development of a Zero-Gravity Whole Body Shower [71-Av-2] (*A*) ..... O 54
Parker, R. F.
Gas Turbines for Pipeline Compressor Drives in North America and Europe [71-GT-35] (*A*) Jl 38
Parker, Robert B. elected Fellow ASME .. N 91
Parker, Walter B. elected Fellow ASME .. S 99
Parkinson, A. G.
On the Use of Balancing Machines for Flexible Rotors [71-Vibr-73] (*A*) ..... N 54
Parks, E. G., Jr.
Metal Matrix Composite Fabrication Procedures for Gas Turbine Engine Blades [71-GT-46] (*A*) Jl 38
Parks, V. J.
Stresses in a Pressurized Ribbed Cylindrical Shell with a Reinforced Circular Hole Interrupting a Rib [71-PVP-8] (*A*) ..... Ag 51
Parsons, C. B.
Study of the Onset of Premature Heat-Transfer Crisis During Hydrodynamic Instability in a Full-Scale Reactor Channel [71-HT-11] (*A*) O 61
Parsons, Ralph M.
MIT Environment Lab Renamed Ralph M. Parsons Laboratory for Water Resources and Hydrodynamics (*EN*) ..... Ja 64
Parsons, W. M. deceased ..... N 93
Particle Metallurgy Process
Commercial Tool Steels via P/M Process (*BTR*) Je 33
Particles
See also Alpha Particles
Addition of Heated Solid Particles to a Gas Flowing in a Pipe [71-FE-22] (*A*) ..... Ag 55
Particle Motion on Oscillating Conveyors
Part 1: The Equations of Motion and the Rules for Predicting Motion from Transitions [71-Vibr-15] (*A*) ..... N 49
Part 2: Practical Solutions to the Equations of Motion and the Extension of the Theory to Beds of Granular Material [71-Vibr-16] (*A*) ..... N 49
Slow Particulate Viscous Flow in Channels and Tubes—Application to Biomechanics [71-APM-R] (*A*) ..... O 59
Spectral Emittance of Apollo 12 Lunar Fines [71-HT-21] (*A*) ..... O 62
Paschkis, Victor
Assessment—By Whom, for Whom? [70-WA/Av-5] (*A*) ..... F 68
Power Plant Sites (*C*) ..... My 60
Paslay, P. R.
Creep of Single Crystal Nickel-Base Superalloy Tubes Under Biaxial Tension [71-APM-1] (*A*) S 55
Pastorius, W. J.
Application of Holographic Techniques to Turbine Disk Vibration [71-Vibr-105] (*A*) ..... D 54
Patterson, Kerry E.
Rarefied Gas Flow Through Long Square Tubes [70-WA/PID-1] (*A*) ..... Mr 63
Patterson, William C.
Skylab Environmental Control and Life Support Systems [71-Av-14] (*A*) ..... O 56
Patula, E. J.
The Merit of Different Error Minimization Criteria in Approximate Analysis [71-APMW-8] (*A*) N 55
Paugh, C. T. deceased ..... S 99
Paugh, James J., Jr. elected vice-president, centrifugal engineering by Warren Pumps, Inc. Je 78
Paul, B.
Dynamic Characteristics of a Vibrating Plate Compactor [71-Vibr-18] (*A*) ..... N 49
Paulus, J. Donald elected Vice-President, ASME Industry Department Policy Board 1972–1974 ..... N 87
Pavia, Edgar H. elected director of Bilbyrne Corp. ..... O 89
A Continuous, Automatic, High-Strength, High-Capacity Plant to Manufacture Sodium Hypochlorite at Atmospheric Pressure [70-WA/PID-7] (*A*) ..... Mr 63
Paving
Tires and Roads [based on 69-Lub-20] Credit Where Due (*C*) (*AC*) ..... Mr 66
Payne, Bruce
Ten Years' Progress in Management, 1960–1970 III: General and Operations Management Long-Range and Strategic Planning—Its History and Its Future [70-WA/Mgt-2] (*A*) Mr 58
Paz, M.
Dynamic Analysis of Structural Frames Supporting Vibrating Conveyors [71-Vibr-34] (*A*) ..... N 51
Peaking
Creep/Fatigue Interaction Correlation for 304 Stainless Steel Subjected to Strain-Controlled Cycling with Hold Times at Peak Strain [71-PVP-6] (*A*) ..... Ag 50
Operating Concept for a 240-MW Combined Cycle Intermediate Peaking Plant [71-GT-53] (*A*) Ag 45
Pearman, Edward deceased ..... F 106
Pearson, J. T.
Experimental Study on the Dynamics of a Gas-Levitated Disk [71-APM-3] (*A*) ..... S 55
Peaslee, Dana N. deceased ..... Ap 88
Peaucellier's Linkage
On Kinematic and Force Analysis of Peaucellier's Linkage [70-Mech-47] (*A*) ..... Ja 50
Pecoraro, J. N.
Application of Reverse Osmosis to Wash Water Recovery for Manned Space Flights [71-Av-1] (*A*) ..... O 54
Peczkowski, J. L.
Synthesis by Liapunov's Direct Method [70-WA/Aut-3] (*A*) ..... F 69
Pendulum
An Analysis of Forces at the Pivot Bearing of a Compound Pendulum [71-APM-H] (*A*) .... O 60
Penetration
Depth of Penetration During Electron Beam Welding [70-WA/HT-2] (*A*) ..... Ap 58
Effective Elastic Constants for Thick Perforated Plates with Square and Triangular Penetration Patterns [71-PVP-17] (*A*) ..... Ag 51
Pennsylvania
Regional Instruction System for Education Computing Networks (*NB*) ..... D 66
Pennsylvania State University Honors James L. Everett, III, as Distinguished Alumnus Jl 74
Penny, R. K.
Shakedown of Pressure Vessels with Ellipsoidal Heads [71-PVP-34] (*A*) ..... Ag 53
Pereyra, M. R.
Investigations of the Substitution of Isothermal Fabrication Programs for Last Pass Temperature Control Programs [71-Met-2] (*A*) ..... Ag 48
Perez y Perez, Leonard receives Graduate Paper Award from SNAME ..... Ja 105
Performance Test Codes
See Codes and Standards
Perkins, E. S.
Technology for Centrifugal Compressors [71-Pet-24] (*A*) ..... D 49
Perkinson, Jack M. receives 1969–1970 Design Problem Contest Award at 1970 WAM Ja 74, 75
Permafrost
Protecting the Permafrost (*BTR*) ..... S 42
Permutation
On the Realizability of Permutational Synthesis of Mechanisms [70-Mech-58] (*A*) ..... Ja 51
Perrone, N.
A General Nonlinear Relaxation Iteration Technique for Solving Nonlinear Problems in Mechanics [70-WA/APM-43] (*A*) ..... Je 48
Perry, L. W.
Thermionic Reactor Development [70-WA/Ener-13] (*A*) ..... Ap 62
Persian Gulf
56-in. (1.4-m) Steel Pipe (*OS*) ..... Ag 43
Personal Rapid Transit (PRT)
See Rapid Transit
Perturbation
Some Further Contributions to the Dynamic Sensitivity of the Parameter Perturbation Process [70-WA/Aut-5] (*A*) ..... F 69
Peskin, R. L.
Some Aspects of Gas-Solid Suspension Turbulence [71-FE-15] (*A*) ..... Ag 55
Pesticides
Pesticide Reports (*NB*) ..... N 69
Peters, G. T.
Noise Abatement in Industry
Gas Turbine Noise Abatement
Utility Applications for Advanced Gas Turbines to Eliminate Thermal Pollution [70-WA/GT-9] (*A*) ..... Ap 56
Peterson, D. W.
Design of Four-Bar Linkages Using Interactive Computer Graphics and Synthesis Curves [70-Mech-45] (*A*) ..... Ja 50
Peterson, W. C.
Boiling-Curve Measurements from a Controlled Heat-Transfer Process [71-HT-J] (*A*) ..... N 59
Petrochemistry
Petrochemical Complex (*OS*) ..... D 45
Petroleum
See also Oil
Application of Tungsten Carbide to Oilfield Rotary Drill Bits [71-Pet-21] (*A*) ..... D 49
Austenitic Stainless Steels with Unusual Mechanical and Corrosion Properties [71-Pet-38] (*A*) ..... D 51
Combating Well Casing Corrosion [71-Pet-16] (*A*) D 48
Combustion Noise and Its Control in Process Plant Furnaces [71-Pet-6] (*A*) ..... D 47
Creep and Creep-Rupture Properties of Types 304N and 316N Stainless Steels [71-Pet-34] (*A*) D 50
Determination of Aerodynamic Behavior of Cantilevered Stacks and Towers of Circular Cross Section [71-Pet-36] (*A*) ..... D 51
Development and Performance of a Vanadium-Nitrogen Treated Steel for High Strength Pipeline Fittings [71-Pet-18] (*A*) ..... D 49
Development of Modern Turbulent-Mass Hot-Mix Plant [71-Pet-28] (*A*) ..... D 50
Drilling Riser Stress Measurements [71-Pet-1] (*A*) D 47
Ecologic and Economic Benefits of the Power Recovery Gas Expander [71-Pet-11] (*A*) .. D 48
Effect of Heat Treatment of the Properties of 3½ Percent Nickel Steel [71-Pet-29] (*A*) .. D 50
The Effects of Vanadium in High Strength Low Alloy Steels [71-Pet-5] (*A*) ..... D 47
Energy Systems in Large Process Plants [71-Pet-13] (*A*) ..... D 48
Factors Affecting Design and Reliability of High Performance Gears in Process Compressor Trains [71-Pet-30] (*A*) ..... D 50
The Forces on a Cylinder Oscillating Sinusoidally in Water [71-Pet-2] (*A*) ..... D 47
Gas Piping Design for High Speed Reciprocating Compressor Units [71-Pet-3] (*A*) ..... D 47
High Temperature Embrittlement Phenomena of 2¼Cr-1Mo Weldments [71-Pet-19] (*A*) .... D 49
Minor Details Influence Useful Life of Packaged Reciprocating Compressor Unit [71-Pet-41] (*A*) D 51
Modeling Liquid Pipelines in Transient and Steady State (A Method for Digital Computers) [71-Pet-37] (*A*) ..... D 50
Multilayer Vessels for High Pressures [based on 70-Pet-32] ..... Mr 34
New Design Concepts and Materials for Mechanical Shaft Seals [71-Pet-35] (*A*) ..... D 51
New Fuels—Old Coal [71-Pet-15] (*A*) ..... D 48
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Design and Performance of High-Pressure Blowoff Silencers [70-WA/Pet-1] (*A*) Ap 54
Energy Transmission in Piping Systems and Its Relation to Noise Control [70-WA/Pet-3] (*A*) ..... Ap 54
Machinery Noise May Indicate Loss of Efficiency and Severity of Dynamic Stresses [70-WA/Pet-2] (*A*) ..... Ap 55
Refinery Flair System Injectors Redesigned for Noise Control [70-WA/Pet-4] (*A*) .... Ap 55
Process Plant Design for an Extremely Cold Environment [71-Pet-7] (*A*) ..... D 48
Programmed Preventive Maintenance—Its Application to Oil Field Operation [71-Pet-10] (*A*) D 48
Pulsation Mitigation Experience at the Willamar Waterflood Plant [71-Pet-12] (*A*) ..... D 48
Pump Suction Piping Where NPSH Is Marginal [71-Pet-20] (*A*) ..... D 49
Recommended Practice for Most Efficient Use of Processed Exhaust Gas for Oil Production [71-Pet-23] (*A*) ..... D 49
Reliability Design in Salt Water Disposal and Inspection Facilities [71-Pet-8] (*A*) ..... D 48
Requirements of Packaged Gas Compressor Units [71-Pet-4] (*A*) ..... D 47
Resistance of Some Standard Compressor Materials to Hydrogen Sulfide Stress-Corrosion Cracking [71-Pet-25] (*A*) ..... D 50
Selecting the Economic Driver System for Large Compressors [71-Pet-32] (*A*) ..... D 50
Seventeen Years Operating Experience with Gas Turbines in a Petrochemical Plant [71-GT-30] (*A*) ..... Jl 41
Signature Analysis of Plant Equipment [71-Pet-14] (*A*) ..... D 48
Skimming Oil from Basins and Lagoons [based on 70-Pet-3] ..... Ap 24
Skimming Oil from Basins and Lagoons (*C*) Je 51
The Story of a Synthesis Gas Compressor Failure [71-Pet-31] (*A*) ..... D 50
Stress Analysis of High Temperature Pyrolysis Heater Coil Systems Subjected to Creep and Low Cycle Fatigue [71-Pet-17] (*A*) ..... D 49
Subsurface Recording Wireline Flowmeter [71-Pet-9] (*A*) ..... D 48
Technology for Centrifugal Compressors [71-Pet-24] (*A*) ..... D 49

Petroleum (*Continued*)
An Underwater Christmas Tree [71-Pet-40] (*A*) **D 51**
Using Systems Analysis to Improve Protective Design [71-Pet-22] (*A*) ..... **D 49**
Welding of Cryonic 5 Steel [71-Pet-33] (*A*) ... **D 50**
Petrothene XL
See Polyethylene
Pfeifer, Otto J., Jr. deceased ..... **F 106**
Phasigram
See Images, Imaging
Phenix Fast Reactor
See Reactors
Philbrick, Donald C. deceased ..... **Ap 88**
Phillips, Aris elected Fellow ASME ..... **My 90**
Phillips, Carolyn F. reelected secretary by Society of Women Engineers ..... **N 89**
Phinney, J. M.
Reverse Reduction Marine Drives for High Powered Gas Turbines [71-GT-82] (*A*) .... **Jl 41**
Phonetics
See Vocalism
Phonics
See Vocalism
Photo Briefs
See News
Photocopiers
Xerox 840
Speeds Flow of Engineering Data (*BTR*) .. **Ja 36**
Photoelasticity
Applications of Room Temperature Three-Dimensional Photoelastic Techniques [71-PVP-61] (*A*) **S 50**
Photoelastic Study and Fatigue Tests of a Contoured, Integrally Reinforced Branch Connection [71-PVP-5] (*A*) ..... **Ag 50**
Photoelasticity Applied to Analysis of Tubular Connections for Offshore Structures [71-Pet-27] (*A*) ..... **D 50**
Photography
Advanced Image Handling (*BTR*) ..... **Jl 29**
Carriage-Rail Assembly for High-Resolution Mechanical Positioning (*NTB*) ..... **D 38**
"Heat Picture" of N. Y. Waters (*BTR*) ..... **Ja 33**
The Laser in Aerospace (*BTR*) ..... **My 43**
Photofabrication of Metal Parts [based on 71-DE-32] ..... **N 19**
Photofabrication of Metal Parts [71-DE-32] (*A*) **Jl 47**
TV First (*PB*) ..... **D 42**
Pi Tau Sigma
Call for Pi Tau Sigma Nominations ..... **Mr 78**
Gold Medal Award
See also Honors
Pi Tau Sigma Chapter at Texas A & M elects Richard B. Robertson to honorary membership **Je 77**
Pickard, G. W.
Synthesis of a Four-Bar Linkage Adjustable for Variable Radius of Curvature of a Coupler Curve [70-Mech-80] (*A*) ..... **Ja 54**
Picturephones
Blurred by Computer (*PB*) ..... **Je 36**
Pierce, A. E.
Subsurface Recording Wireline Flowmeter [71-Pet-9] (*A*) ..... **D 48**
Pierce, G. A.
An Analysis Technique for Composite Structures Subject to Dynamic Loads [70-WA/APM-23] (*A*) ..... **My 59**
Pilkey, W.
Avoiding Iterative Searches to Find Critical Speeds of Rotating Shafts with the Transfer Matrix Method [71-Vibr-53] (*A*) ..... **N 52**
Pinkerton, J. D.
Noise Abatement in Industry
Engine Combustion and Noise
The Influence of Turbulence and Compounding on Unburned Hydrocarbons and Nitric Oxide in the Combustion Products from Internal Combustion Engines [70-WA/DGP-2] (*A*) ..... **Ap 57**
Pins
Foolproof Quick-Release Pin (*NTB*) ..... **Ap 46**
Pipelines, Pipes, Piping
See also Heat Pipes
Addition of Heated Solid Particles to a Gas Flowing in a Pipe [71-FE-22] (*A*) ..... **Ag 55**
Arctic Pipeline (*BTR*) ..... **O 47**
Bending of Cylindrical Shells by Initial Parameter Method [70-WA/PVP-2] (*A*) ..... **F 75**
Circumferential Welds in Multilayer Pressure Vessels [70-WA/PVP-6] (*A*) ..... **F 76**
Design of Pressure Vessels for Optimized Cost [70-WA/PVP-4] (*A*) ..... **F 76**
Development and Performance of a Vanadium-Nitrogen Treated Steel for High Strength Pipeline Fittings [71-Pet-18] (*A*) ..... **D 49**
The Dispersion of Matter in Turbulent Pipe Flows [70-WA/FE-14] (*A*) ..... **F 73**
Effective Stiffness of Concrete Coated Line Pipe [71-Pet-26] (*A*) ..... **D 50**
Engineering a Better Environment
11: Underground Utility Tunnels [based on 70-WA/Ener-11] ..... **S 27**
Underground Tunnels (*C*) ..... **N 62**
The Potential Use of Utility Tunnels in Urban Areas [70-WA/Ener-11] (*A*) ..... **Ap 62**
Fatigue-Crack Growth Rates and Fracture Toughness Study of Welded Aluminum Alloy 5083 [70-WA/PVP-5] (*A*) ..... **F 76**
56-in. (1.4-m) Steel Pipe (*OS*) ..... **Ag 43**
Flow in Rotating Straight Pipes of Circular Cross Section [70-WA/FE-13] (*A*) ..... **F 73**
Forces on Submarine Pipelines from Steady Currents [71-UnT-3] (*A*) ..... **D 46**
Gas Piping Design for High Speed Reciprocating Compressor Units [71-Pet-3] (*A*) ..... **D 47**
Gas Turbines for Pipeline Compressor Drives in North America and Europe [71-GT-35] (*A*) **Jl 38**
Large-Diameter Submarine Pipelines for Tanker Terminals [71-UnT-1] (*A*) ..... **D 46**
Light Benders (*PB*) ..... **My 48**
Modeling Liquid Pipelines in Transient and Steady State (A Method for Digital Computers) [71-Pet-37] (*A*) ..... **D 50**
Moving the Arctic Oil: Pipelines and the Pour Point ..... **N 27**
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Energy Transmission in Piping Systems and Its Relation to Noise Control [70-WA/Pet-3] (*A*) ..... **Ap 54**
Protecting the Permafrost (*BTR*) ..... **S 42**
Pump Suction Piping Where NPSH Is Marginal [71-Pet-20] (*A*) ..... **D 49**
Response of a Piped LMFBR to Primary System Pipe Rupture [71-NE-1] (*A*) ..... **Jl 42**
Stress Analysis of Thin Elasto-Plastic Shells [70-WA/PVP-3] (*A*) ..... **F 76**
Stress Resultants and Out-of-Plane Deformations in Stiff Rings Attached to Elastic Cylinders and Subject to Concentrated Loads [70-WA/PVP-1] (*A*) ..... **F 75**
Submarine Pipeline (*OS*) ..... **Jl 35**
Theoretical Analysis of Laminar Pipe Flow in a Porous Wall Cylinder [70-WA/Flcs-3] (*A*) **Je 43**
Upper Bounds to Limit Pressures of Branch-Pipe Lateral Connections
Part I: Bounds for Branch/Pipe Diameter Ratios Smaller than 0.7 [71-PVP-43] (*A*) ..... **S 48**
Part II: Bounds and Reliability for Branch/Pipe Diameter Ratios Larger than 0.7 [71-PVP-44] (*A*) ..... **S 48**
The Use of Gas Turbines in Gas Pipeline Service in Western Canada—Present and Future [71-GT-37] (*A*) ..... **Jl 38**
Pipkin, A. C.
Plane Deformations of Incompressible Fiber-Reinforced Materials [71-APM-V] (*A*) ..... **O 60**
Pistons
Operating Experience with Filled PTFE Piston Rings [70-WA/Lub-1] (*A*) ..... **Ap 65**
Pitch
Bubble Level as Pitch and Roll Sensor (*NTB*) **O 44**
A Rating Formula for Fine Pitch Boundary Lubricated Gears [70-Mech-63] (*A*) ..... **Ja 52**
Pitting
Salvaging Surface-Damaged Castings (*NTB*) **Ja 35**
Pittsburgh
The Steel Triangle (*NB*) ..... **D 66**
Roof-Top Heliport (*PB*) ..... **D 42**
Pivots
An Analysis of Forces at the Pivot Bearing of a Compound Pendulum [71-APM-H] (*A*) .... **O 60**
Planar Mechanisms
See Mechanisms
Planning
Ten Years' Progress in Management, 1960–1970
III: General and Operations Management
A Concept of a Plan [70-WA/Mgt-4] (*A*) **Mr 58**
Long-Range and Strategic Planning—Its History and Its Future [70-WA/Mgt-2] (*A*) **Mr 58**
Plant Engineering and Maintenance
Engineering a Better Environment
3: Building a Pollution-Free Steel Plant ... **Ja 25**
5: Waste Water Treatment Enhances Environment [based on 70-PEM-19] ..... **Mr 40**
6: Industrial Noise Control—Past, Present, and Future [based on 70-PEM-29] ..... **Ap 29**
For Plant Management: Corrosion-Control Techniques [based on 70-PEM-23] ..... **Ja 10**
PE & M Division to Send Student Paper Winner to Conference ..... **Mr 80**
Plasma
Plasma Radiation Effects in Tube Arc Heating [71-HT-18] (*A*) ..... **O 62**
Plasma Treatment of Railway Rails to Improve Traction [70-WA/RR-1] (*A*) ..... **Je 42**
Radiative Energy Transfer Within a Nonisothermal Air Plasma [71-HT-G] (*A*) ..... **N 58**
Torch Highlight (*PB*) ..... **D 43**
Plasticity
Combined Elastic-Plastic-Creep Analysis of Two-Dimensional Bodies [71-PVP-30] (*A*) ..... **Ag 52**
A Design Oriented Approach to Creep and Plasticity in Finite Element Programs [70-WA/DE-4] (*A*) ..... **F 65**
Determination of the Unloading Boundary in Longitudinal Elastic-Plastic Stress Wave Propagation [71-APM-15] (*A*) ..... **S 56**
Displacement and Plastic Distortion Fields Produced by Dislocations in Anisotropic Media [71-APM-17] (*A*) ..... **S 56**
The Effect of Pulse Shape on the Dynamic Plastic Deformation of Reinforced Circular Cylindrical Shells [71-PVP-31] (*A*) ..... **Ag 53**
Elastic-Plastic Analysis of Thick-Walled Pressure Vessels with Sharp Discontinuities [71-PVP-23] (*A*) ..... **Ag 52**
Elastic-Plastic Plane Waves with Combined Compressive and Two Shear Stresses in a Half Space [71-APM-10] (*A*) ..... **S 56**
Experimental Determinations of Plastic Collapse Loads for Pipe Elbows [71-PVP-37] (*A*) .. **Ag 53**
An Experimental Evaluation of Plasticity Theories for Anisotropic Metals [70-WA/APM-17] (*A*) **My 58**
Experiments on the Plastic Limit Behavior of Shell-Nozzle Junctures Subjected to Nonsymmetric Loading [71-PVP-45] (*A*) ..... **Ag 53**
The Free Plastic Compression of Pure Metals [70-WA/APM-10] (*A*) ..... **My 58**
On the Fundamental Mechanism of Large Strain Plastic Deformation: Electron Microscopy of Metal Cutting Chips [70-WA/Prod-11] (*A*) **Mr 60**
The Hodograph Transformation in Plastic Waves with Discontinuous Loading Conditions [71-APMW-12] (*A*) ..... **N 55**
On the Initial Speed of Elastic-Plastic Boundaries in Longitudinal Wave Propagation in a Rod [70-WA/APM-50] (*A*) ..... **Je 48**
Plastic Flow at the Chip-Tool Interface During Hot Machining [70-WA/Prod-1] (*A*) ..... **Mr 59**
The Plastic Flow of Surface Metal Layers [71-APM-W] (*A*) ..... **O 60**
Reexamination of the Kolsky Technique for Measuring Dynamic Material Behavior [70-WA/APM-31] (*A*) ..... **My 59**
On the Relationship Between Plastic Shakedown and the Repeated Loading of Creep Structures [71-APM-C] (*A*) ..... **O 59**
Shakedown in Elastic-Plastic Systems Under Dynamic Loadings [71-APMW-27] (*A*) ..... **N 56**
Shear Front-Lamella Structure in Large Strain Plastic Deformation Processes [71-Prod-1] (*A*) **Jl 48**
Stress Analysis of Thin Elasto-Plastic Shells [70-WA/PVP-3] (*A*) ..... **F 76**
Plastics
Dual Formulation of Variational Problems in Optimal Design [71-Vibr-110] (*A*) ..... **D 54**
Electroplating and Electroless Plating of Plastics [71-DE-35] (*A*) ..... **Jl 47**
14-ft Plastic Gear (*PB*) ..... **Ag 41**
Infrared Radiation of Thin Plastic Films [70-WA/HT-15] (*A*) ..... **Ap 59**
Painting of Plastics [71-DE-36] (*A*) ..... **Ag 46**
Plastic Sub (*BTR*) ..... **D 36**
Rubber, Plastics Industry [1971 outlook] (*NR*) **F 84**
Yield Criteria and the Bauschinger Effect for a Plastic Solid [71-Met-P] (*A*) ..... **S 55**
Plastics Industry
Plastics and Ecology (*BTR*) ..... **N 41**
Plates, Plating
Axisymmetric Postbuckling and Nonsymmetric Buckling of a Spherical Shell Compressed Between Rigid Plates [71-APMW-7] (*A*) ..... **N 55**
Behavior of a Steep Prestressed Arch Made from a Buckled Strut [70-WA/APM-15] (*A*) .... **My 58**
Coupled Response of Spatial Vibratory Structures Mounted to Isotropic Plate Elements [71-Vibr-3] (*A*) ..... **N 48**
Development and Application of Mechanically Enhanced Heat-Transfer Surfaces [71-HT-40] (*A*) ..... **N 58**
Drag Force Measurements of a Compressible Turbulent Boundary Layer on an Adiabatic Smooth Flat Plate [70-WA/FE-26] (*A*) .... **F 74**
Dynamic Characteristics of a Vibrating Plate Compactor [71-Vibr-18] (*A*) ..... **N 49**
The Effect of Fluid Inertia on a Porous Thrust Plate—An Analytical Solution [70-Lub-18] (*A*) **Ja 44**
Effective Elastic Constants for Thick Perforated Plates with Square and Triangular Penetration Patterns [71-PVP-17] (*A*) ..... **Ag 51**
Electroplating and Electroless Plating of Plastics [71-DE-35] (*A*) ..... **Jl 47**
Elevated Temperature Properties of Maraging

Plates, Plating (*Continued*)
Steel Plates and Welds [71-Met-E] (*A*)...Ag 48
Experiments on the Onset of Longitudinal Vortices in Laminar Forced Convection Between Horizontal Plates [71-HT-1] (*A*).....O 60
Flow Over an Oscillating Plate with Suction or with an Intermediate Film: Two Exact Solutions of the Navier-Stokes Equations [70-WA/APM-22] (*A*).....My 59
Fracture Toughness of ASTM A533 Grade B Class 1 Heavy Section Submerged Arc Weldments [71-Met-B] (*A*).....Ag 48
Free Convection from a Vertical Plate with Discontinuous Wall Temperature [71-HT-B] (*A*) N 58
Hydro-Rotational Stability of a Slender Plate in a Rectangular Flow Channel [71-Vibr-37] (*A*) N 51
Investigations of the Substitution of Isothermal Fabrication Programs for Last Pass Temperature Control Programs [71-Met-2] (*A*)....Ag 48
Large Amplitude Vibration of a Circular Plate with Concentric Rigid Mass [71-APMW-11] (*A*) N 55
Large Amplitude Vibrations of Circular Plate on a Uniform Elastic Foundation [71-Vibr-9] (*A*) N 48
Local and Gross Deformations in Cracked Metallic Plates and an Engineering Ductile Fracture Analysis [71-PVP-52] (*A*).....S 48
A New Approach for Plate Vibrations: Combination of Transfer Matrix and Finite-Element Technique [71-Vibr-85] (*A*).....D 53
New Chromium-Plating Process (*OS*).....Ag 43
Noise Abatement in Industry
Interaction of Sound and Structures
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Numerical Method for Determining Stress Intensity Factors of an Interior Crack in a Finite Plate [71-Met-L] (*A*).....S 54
Parametric Resonance of Stiffened Rectangular Plates [71-APM-28] (*A*).....S 57
The Part-Through Surface Crack in an Elastic Plate [71-APM-20] (*A*).....S 56
Radial Stress Release Phenomena in Plate Impact Experiments: Compression—Release [71-APMW-16] (*A*).....N 56
The Resonant Response of a Rectangular Plate with an Elastic Edge Restraint [71-Vibr-6] (*A*) N 48
The Stress Analysis of Plates with Single and Clustered Nozzles by the Boundary Point Least Squares Method [71-PVP-20] (*A*).....Ag 52
Theory of Laminated Plates [70-WA/APM-25] (*A*).....My 59
Transient Deformation of Slender Rods Impacting Rigid Plates [71-Vibr-93] (*A*).....D 53
Turbulent Flow Between Parallel Plates with Gas Property Variation [71-FE-38] (*A*).....S 53
Variational Method for a Pseudoplastic Fluid in a Laminar Boundary Layer over a Flat Plate [70-WA/APM-39] (*A*).....Je 47
Vibrations of Multicore Orthotropic Sandwich Plates [71-Vibr-48] (*A*).....N 52
Platinum
Spectral Radiation from Alumina Powder on a Metallic Substrate [70-WA/HT-14] (*A*)..Ap 59
Plaut, R. H.
Bounds on Motions of Some Lumped and Continuous Dynamic Systems [71-APMW-3] (*A*) N 55
Pleck, M. H.
Graphical Display of Computer Simulated Unbalanced Rotor Response [71-Vibr-42] (*A*)..N 52
Plesset, M. S.
Nonlinear Effects in the Collapse of a Nearly Spherical Cavity in a Liquid [71-FE-5] (*A*) Ag 54
Thermal Effects in the Free Oscillation of Gas Bubbles [70-WA/FE-11] (*A*).....F 72
Plisco, Jay M.
The Job Problem (*C*).....Ja 55
Plumes
Plume Rise and Dispersion in a Local Wind System [70-WA/Fu-1] (*A*).....F 75
Plunkett, Robert reelected Vice-President, ASME Basic Engineering Department Policy Board 1972–1974.....N 86
Plutonium
Fast Reactor Conferees Told '71 Year of Decision for Plutonium Reactor.....Je 68
PMC Colleges
Program Crossroad
Tuition Deferred Education (*EN*).....O 74
Pneumatics
Bidirectional Flow Meter (*NTB*).....D 38
A Computer-Aided Design Method Specially Applicable to Fluidic-Pneumatic Sequential Control Circuits [70-WA/Flcs-17] (*A*).....Je 44
Cooling It—or Him (*BTR*).....S 42
Lumped Parameter Modeling of a Nonlinear Pneumatic-Mechanical System [71-Vibr-41] (*A*) N 51
On a Model of a Pneumatically Actuated Mechanical System [70-Mech-34] (*A*).....Ja 49
Podall, H. E.
Application of Reverse Osmosis to Wash Water Recovery for Manned Space Flights [71-Av-1] (*A*).....O 54
Polakowski, Natalis H. deceased.....Mr 88
Polar Ice Cap
Does Man's Release of Energy Contribute to the Melting of the Polar Ice Caps or Does It Move the Earth Toward Another Ice Age? [70-WA/APC-1] (*A*).....F 68
Polarity
Lubrication Theory for Micropolar Fluids [71-APM-N] (*A*).....O 59
Polcer, J.
Selection of the Steam Generator for the Proposed 350-MW(e) Demonstration Plant [71-NE-5] (*A*) Jl 42
Politics
ASME Updates Legislative Policy (*Ed*).....Je 9
Council Policy: Guide to Society [ASME] Legislative Activities.....Je 68
Pollard, A. M. deceased.....O 91
Pollard, E. I.
Transient Torsional Vibration Due to Suddenly Applied Torque [71-Vibr-99] (*A*).....D 53
Pollution, Pollution Control
The Abandoned Car (*NB*).....Mr 72
Air Pollution Control Office (Ann Arbor)
Bright Future Predicted for Gas Turbine (*BTR*) S 37
Air Quality Standards Restrictive (*NB*).....O 72
Anti-Pollution Tax Write-Off (*NB*).....Ag 67
ASME Forum Discusses Proposed Federal Emission Standards.....O 83
Atmospheric Pollution Measurement (*NTB*) N 39
Combatting Pollution (*NB*).....Mr 73
Coming: The New York Banana (*BTR*).....S 38
Control of Water Pollution from the Discharge of Liquid Effluents of Wet-Collector Type Gas-Cleaning Systems [70-WA/PID-9] (*A*)...Mr 64
Counterattack on Methemoglobinemia (*BTR*) Mr 51
Does Man's Release of Energy Contribute to the Melting of the Polar Ice Caps or Does It Move the Earth Toward Another Ice Age? [70-WA/APC-1] (*A*).....F 68
EJC Technical Information Seminar Gets Earful on Noise Pollution Control (*NR*).....Mr 70
The Electric Car—Solution to Pollution? (*BTR*) Je 32
The Gas Turbine (*C*).....Ag 56
Elemental Sulfur Pilot Plant (*NB*).....D 66
Engineering a Better Environment
1: Environmental Dangers Challenge Design Engineers [based on 70-DE-79] Compatibility (*C*).....F 77
Conserving Water (*C*).....Ja 56
3: Building a Pollution-Free Steel Plant..Ja 25
4: An Engineer Looks at the Energy Dilemma F 40
The Energy Dilemma (*C*).....Je 50
Operation Arctic (*C*).....Ap 68
5: Waste Water Treatment Enhances Environment [based on 70-PEM-19].....Mr 40
6: Industrial Noise Control—Past, Present, and Future [based on 70-PEM-29].....Ap 29
8: Auto Pollution Solution: The Gas Turbine? [based on 70-WA/GT-8].....Je 25
The Gas Turbine (*C*).....Ag 56, S 59
The Potential of the Gas-Turbine Vehicle in Alleviating Air Pollution [70-WA/GT-8] (*A*) My 56
10: Designing an Air Monitoring Facility Ag 24
Air Monitoring Facility (*C*) (*D*) (*AC*)...N 60
Fuel Additives (*NB*).....Je 58
Growth ≠ Progress?.....Ap 20
Growth ≠ Progress? (*C*) (*D*) Je 52, Jl 50, S 58; (*C*) (*AC*) S 58, O 64
Hydrogen-Fueled IC Engine (*BTR*).....N 40
Industrial Pollution Control Handbook (*CB*) Ag 57
Laser Detects Air Pollution (*BTR*).....N 37
Lead Levels Up (*BTR*).....D 35
Managing Ocean Resources (*OS*).....Je 38
Marinas Fight Pollution (*BTR*).....S 37
Materials Selection for Design of Pollution Control Equipment [71-DE-12] (*A*).....Jl 45
MECAR Tackles Problems of Incineration and Clean Air at Symposium, 1971
For Survival: Are Gas Masks Essential?...Jl 70
Motor Vehicle Emissions Committee (*NB*)...D 66
New Sources Listed for EPA Air Standards (*NB*) Je 58
NO_x Emissions at Low Excess-Air Levels in Pulverized-Coal Combustion [70-WA/APC-3] (*A*) F 68
Noise Abatement in Industry
Engine Combustion and Noise
The Influence of Turbulence and Compounding on Unburned Hydrocarbons and Nitric Oxide in the Combustion Products from Internal Combustion Engines [70-WA/DGP-2] (*A*).....Ap 57
Mechanical Aspects of Gear-Induced Noise in Complete Power Train Systems [70-WA/DGP-1] (*A*).....Ap 57
Origins of Reciprocating Engine Noise—Its Characteristics, Prediction, and Control [70-WA/DGP-3] (*A*).....Ap 58
Gas Turbine Noise Abatement
Formation and Measurements of Nitrogen Oxides in Gas Turbines [70-WA/GT-3] (*A*) Ap 56
Future Trends in Aircraft Engine Noise Research [70-WA/GT-13] (*A*).....Ap 57
Noise Considerations in High Bypass Ratio Fan Engine Design [70-WA/GT-14] (*A*) Ap 57
On the Noise from Jet Diffusers [70-WA/GT-5] (*A*).....Ap 56
Some Results of Fan/Compressor Noise Research [70-WA/GT-12] (*A*).....Ap 56
Some Results of Recent Research on Fan and Jet Noise [70-WA/GT-15] (*A*).....Ap 57
The Sound of Gas-Turbine Installations [70-WA/GT-6] (*A*).....Ap 56
Utility Applications for Advanced Gas Turbines to Eliminate Thermal Pollution [70-WA/GT-9] (*A*).....Ap 56
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Application of a Disorder Measure to Acoustical and Structural Models [70-WA/DE-1] (*A*).....F 65, Ap 55
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Multiple Excitations of Structures and Enclosures [70-WA/DE-8] (*A*)...F 66, Ap 55
Response and Internal Noise of a Fuselage to Random Excitation [70-WA/DE-9] (*A*) F 66, Ap 55
Response of Structures to Nonhomogeneous Random Pressure Fields [70-WA/DE-11] (*A*).....F 66, Ap 56
Sound and Vibration Transmission Through Panels and Tie Beams Using Statistical Energy Analysis [70-WA/DE-2] (*A*) F 65, Ap 55
Sound Transmission Through an Elastic Enclosure Acoustically Closely Coupled to a Noise Source [70-WA/DE-12] (*A*) F 67, Ap 56
Underwater Behavior of Free-Flooded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
Vibration Response and Wave Propagation in Periodic Structures [70-WA/DE-3] (*A*) F 65, Ap 55
Noise Abatement and Its Control in the Petroleum Industries
Design and Performance of High-Pressure Blowoff Silencers [70-WA/Pet-1] (*A*) Ap 54
Energy Transmission in Piping Systems and Its Relation to Noise Control [70-WA/Pet-3] (*A*).....Ap 54
Machinery Noise May Indicate Loss of Efficiency and Severity of Dynamic Stresses [70-WA/Pet-2] (*A*).....Ap 55
Refinery Flair System Injectors Redesigned for Noise Control [70-WA/Pet-4] (*A*) Ap 55
Oil-Loving Garbage (*BTR*).....O 42
Operational Logistics in an Air Pollution Monitoring Network [70-WA/PTC-3] (*A*).....My 52
Optimum Burning (*BTR*).....F 48
Pollution Control, Product Safety, Small Computers, "Intelligent" Machines, Superplastic Alloys Featured at ASME Design Engineering Conference, 1971.....Je 70
Pollution Control Center (*NB*).....O 73
Pollution Fighters (*PB*).....S 44
Pollution Solution: The Electrical Approach (*BTR*) Ap 49
Pollution Solution Groups
Civic-Minded Engineers Start Pollution Solution Groups
ASME Sections, Subsections, and Groups Urged to Tackle Environmental Problems Mr 78
Pollution Warning System (*OS*).....Ap 53
Process Optimization Control of Air Pollution [70-WA/APC-2] (*A*).....F 68
Reduced Pollution Power Systems (*NB*).....N 68
Reducing Factory Noise (*OS*).....N 44
Sea Brooms (*BTR*).....O 46
Skimming Oil from Basins and Lagoons [based on 70-Pet-3].....Ap 24
Skimming Oil from Basins and Lagoons (*C*) Je 51
Some Sound Research (*BTR*).....Ag 34
Sulfur Oxide Control and Fly Ash Utilization [71-Pwr-1] (*A*).....D 51

Pollution (*Continued*)
A Survey of Nitrogen-Oxides Control Technology and the Development of a Low NO_x Emissions Combustor [70-WA/Pwr-2] (*A*).....My 54
Ten Years' Progress in Management, 1960–1970
II: Management's Social Responsibilities
A Philosophy of Industrial Air Pollution Control [70-WA/Mgt-11] (*A*).....Mr 57
Tennessee Water Quality Control Act of 1971 signed.....S 97
$300 Million for Pollution Control (*NB*).....Je 58
To End Auto Pollution (*NB*).....Mr 72
Turbine Passenger Car (*BTR*).....Mr 48
Universities Join to Fight Air Pollution (*EN*) Jl 58
Waste Monitoring Urged (*BTR*).....Mr 49
World Energy Press Conference Heralds in Era of Cooperation—Gone Is Era of Competition (*NR*).....N 63

Polyethers
Rolling-Element Fatigue and Lubrication with Fluorinated Polyethers at Cryogenic Temperatures [70-Lub-17] (*A*).....Ja 44

Polyethylene
New Flame-Retardant Compounds (*BTR*)...S 43

Polymers
Shear Strength and Friction of Polymers Under High Pressure [70-WA/PT-1] (*A*).....Mr 65
Visual Detection of Holes in Thin Polymeric Films (*NTB*).....F 50

Polymethyl Methacrylate
Critical-Induced Acceleration for Shock Propagation in Polymethyl Methacrylate [71-APM-14] (*A*).....S 56

Polytechnic Institute of Brooklyn offers programs leading to Engineer Degree in both mechanical and industrial engineering (*EB*) My 77

Polytetrafluoroethylene (PTFE)
Operating Experience with Filled PTFE Piston Rings [70-WA/Lub-1] (*A*).....Ap 65

Polyurethane
Effects of Polyurethane Foam on Fuel System Contamination [71-GT-54] (*A*).....Jl 39
Foamy Fun House? (*PB*).....N 46, 47
A Linear Compressibility Assumption for the Multiple Integral Representation of Nonlinear Creep of Polyurethane [70-WA/APM-6] (*A*).....My 57

Polyvinyl Chloride
Experimental Determination of Some Kernel Functions in the Multiple Integral Method for Nonlinear Creep of Polyvinyl Chloride [70-WA/APM-21] (*A*).....My 59

Ponds
Reflective Cooling Ponds [70-WA/Pwr-4] (*A*) My 54

Ponter, A.
On the Relationship Between Plastic Shakedown and the Repeated Loading of Creep Structures [71-APM-C] (*A*).....O 59

Poon, K. L.
Frequency Response of Pool Boiling Plants [71-HT-A] (*A*).....N 58

Poor, Hustace H. elected Fellow ASME Je 78; receives Fellow ASME certificate.....N 90

Pope, M. H.
The Prediction of Press Loads in Deep Drawing Titanium 6 Al 4V, Stainless Steel AISI 304, and Inconel X Alloys at Various Conditions of Lubrication at Elevated Temperatures [70-WA/Prod-26] (*A*).....Mr 63

Popejoy, Robert H. elected Ingersoll-Rand Co. vice-president responsible for operation of engine process group.....Ja 104

Popov, E. P.
Elastic-Plastic Analysis of Thick-Walled Pressure Vessels with Sharp Discontinuities [71-PVP-23] (*A*).....Ag 52

Popper, J. B.
A New Method of Screw Strength Calculation [71-DE-G] (*A*).....Jl 48

Population
Engineering Water Resources for 2070 [based on 70-WA/PID-8].....Jl 7
Water Resources for 2070 (*C*).....D 56
Engineering Water Resources of the Future [70-WA/PID-8] (*A*).....Mr 64
Growth ≠ Progress?.....Ap 20
Growth ≠ Progress? (*C*) (*D*) Je 52, Jl 50, S 58; (*C*) (*AC*) S 58, O 64

Porch, M.
The Resistance to Rotation of Free and Enclosed Disks [71-APM-25] (*A*).....S 57

Porosity
A Continuum Theory of Fluid Saturated Porous Media [70-WA/APM-36] (*A*).....Je 47
The Effect of Fluid Inertia on a Porous Thrust Plate—An Analytical Solution [70-Lub-18] (*A*) Ja 44
The Investigation of Bone's Substructure Using Megahertz Sound and a Porous Model [70-WA/BHF-11] (*A*).....Ap 63
More the Merrier (*PB*).....F 60
Performance of Air-Cooled Radiatively Heated Screen Matrices [70-WA/Sol-1] (*A*).....F 64
A Porous Black Model for Cancellous Bones [70-WA/BHF-2] (*A*).....Ap 62
Theoretical Analysis of Laminar Pipe Flow in a Porous Wall Cylinder [70-WA/Flce-3] (*A*) Je 43

Portable Devices
Operating Experience and New Approaches Provide Basis for Portable 3500-hp Prime Mover Package [71-GT-51] (*A*).....Jl 38

Posselt, E. deceased.....N 93

Potter, J. H.
The Joule-Thomson Effect in Compressed Liquid Water [70-WA/PID-2] (*A*).....Mr 63
Nitric-Oxide Generation in a Simulated Spark-Ignition Engine [70-WA/PID-3] (*A*).....Mr 63

Poultry
Engineering a Better Environment
5: Waste Water Treatment Enhances Environment [based on 70-PEM-19].....Mr 40

Powder Technology
Light Gas Gun for Powder Compaction [based on 70-WA/PT-4].....Je 18
Laboratory-Size Light Gas Gun—Design and Operation [70-WA/PT-4] (*A*).....Mr 65
Studies on the New Vibratory Powdering Machine [71-Vibr-26] (*A*).....N 50

Powe, R. E.
A Numerical Solution for Natural Convection in Cylindrical Annuli [70-WA/HT-9] (*A*)...Ap 59

Powell, G. H.
Stress Analysis of B16.9 Tees by the Finite Element Method: A Progress Report [71-PVP-40] (*A*).....Ag 53

Power
See also Industrial Power; Power Plants
Combined Helium and Steam Cycle for Nuclear Power Plants [based on 70-WA/NE-3] Ag 14
Combined Cycle (*C*) (*D*) (*AC*).....N 61
A Combined Helium and Steam Cycle for Nuclear Power Generation [70-WA/NE-3] (*A*) My 55
Computer Aided Mathematical Analysis of Fluid Power Systems [71-DE-29] (*A*).....Jl 47
Electric Power Budget (*NB*).....Ap 72
Energy and Power Program Financial Aid Available [at University of Pennsylvania] (*EN*) D 69
Energy's Role in Meeting the Needs of the 1970's [70-WA/Ener-9] (*A*).....Ap 62
Engineering a Better Environment
4: An Engineer Looks at the Energy Dilemma F 40
The Energy Dilemma (*C*).....Je 50
Geothermal Resources (*OS*).....My 51
How Will We Meet the Demand for Electrical Power in 1980? [70-WA/Fu-3] (*A*).....F 75
A New Generation of Bulk Materials-Handling Systems Meets the Growing Demands of the Power, Steel, and Transportation Industries—Innovations in Compatible High-Capacity Components Enable Development of Fully Integrated High-Capacity Systems [70-WA/MH-2] (*A*).....My 53
165,500-kw Francis Turbine (*OS*).....Ja 41
Ilha Solteira (*C*).....Jl 52
Power for Brazil (*OS*).....Je 39
Power-Full Shade (*PB*).....Ag 41
Power in the Year 2001
Part 1—Dawn of the Solar Age.....S 24
Power in the Year 2001 (*C*).....N 60
Part 2—Thermal Sea Power.....O 21
Part 3—Solar Power.....N 33
Part 4—Rock Burning.....D 27
Sea Burning.....D 30
Power in the Year 2001 (*Ed*).....S 17
Power in the Year 2001 (*C*).....N 60
Power Increase and Reliability of Diesel Engines [71-DGP-11] (*A*).....Ag 49
Reflective Cooling Ponds [70-WA/Pwr-4] (*A*) My 54
Sulfur Oxide Control and Fly Ash Utilization [71-Pwr-1] (*A*).....D 51
A Survey of Nitrogen-Oxides Control Technology and the Development of a Low NO_x Emissions Combustor [70-WA/Pwr-2] (*A*).....My 54
System Energy as a Factor in Considering Future Transportation [70-WA/Ener-8] (*A*).....Ap 61
Thrust Bearings for Power Gas Turbines [71-GT-59] (*A*).....Jl 39
Thyristor Power Systems and Their Applications [71-DE-11] (*A*).....Jl 45
Unbalance Response of an Elastic Rotor in Damped Flexible Bearings at Supercritical Speeds [70-WA/Pwr-3] (*A*).....My 55
World Energy Press Conference Heralds in Era of Cooperation—Gone Is Era of Competition (*NR*).....N 63

Power Plants
Are More Blackouts Inevitable?
National Academy of Engineering Tackles Power Plant Siting Problems in Four-Day Washington Forum, 1971.....My 73
A Concept for Generating Plant Control Rooms Utilising Human Engineering System Design Criteria [71-Pwr-2] (*A*).....D 51
Cyclic Energy Demands Supplied Economically with Gas Turbines and Combined Cycle Plants [71-GT-71] (*A*).....Jl 40
Home Engine-Generator Set (*BTR*).....S 38
In-Service Inspection of San Onofre Nuclear Generating Station—
Unit 1 [71-PVP-51] (*A*).....S 48
Units 1, 2, and 3 [70-WA/NE-5] (*A*)....My 55
Largest Ever Single Gas Turbine (*BTR*)....Je 29
New Power Plant (*OS*).....Ag 42
Operation Flowdown (*BTR*).....My 45
Russia's 100 MW Gas Turbine [based on 70-GT-30] Russia's 100-MW Gas Turbine (*C*) (*D*) Ja 56; (*C*) Ap 68
The Use of Flow Modeling Techniques to Obtain a Minimum Loss Design for the Stack Entrance Section of a 700-ft Power Plant Chimney [70-WA/Pwr-1] (*A*).....My 55
Wanted: Power Plant Sites (*Ed*).....Mr 17
Power Plant Sites (*C*).....My 60

Power Plants, Gas-Turbine
Operating Concept for a 240-MW Combined Cycle Intermediate Peaking Plant [71-GT-53] (*A*).....Ag 45

Power Plants, Nuclear
"A" Plant Orders Double (*BTR*).....Jl 27
Coming: The Offshore A-Plant (*BTR*).....D 35
Engineering a Better Environment
4: An Engineer Looks at the Energy Dilemma F 40
The Energy Dilemma (*C*).....Je 40
Operation Arctic (*C*).....Ap 68
Evolution of LMFBR Plant Design for Reliability and Availability [71-NE-3] (*A*).....Jl 42
Fast Breeding Bee Hive (*PB*).....F 60
Nuclear Code Class, Safety Class and Quality Administration: How They Tie Together [71-PVP-56] (*A*).....S 48
Nuclear Fuel (*OS*).....Jl 34
Nuclear Power Expansion (*OS*).....Je 39
Repair of Primary Pressure Systems Piping in a Nuclear Power Plant [71-PVP-50] (*A*) Ag 50, S 48
Steel Heavyweight (*BTR*).....Mr 50
Tracer Tests for Nuclear Power Plant Steam Turbines [based on 69-WA/PTC-3].....Ja 15
Westinghouse to Supply Nuclear Equipment (*NB*) D 67

Power Plants, Steam
Beneficial Uses of Waste Heat [70-WA/Ener-10] (*A*).....Ap 62
The Crisis in Power-Plant Siting [based on 70-WA/Ener-12].....Je 10
Emissions (*C*).....D 57
Power-Plant Siting (*C*) (*AC*) Ag 57; (*C*) S 59, D 57
Engineering a Better Environment
9: Waste Heat Uses Cut Thermal Pollution [based on 70-WA/Ener-6].....Jl 15
Waste Heat Uses (*C*) (*AC*).....O 66
Uses of Waste Heat [70-WA/Ener-6] (*A*) Ap 61
Selection of the Steam Generator for the Proposed 350-MW(e) Demonstration Plant [71-NE-5] (*A*) Jl 42

Power Train Systems
Noise Abatement in Industry
Engine Combustion and Noise
Mechanical Aspects of Gear-Induced Noise in Complete Power Train Systems [70-WA/DGP-1] (*A*).....Ap 57

Prager, M.
Embrittlement of Precipitation Hardenable Nickel-Base Alloys by Oxygen [71-Met-D] (*A*)...Ag 48

Prager, William Receives award as ASME Honorary Membership conferred at 1970 WAM.....Ja 75

Prange, Charles H. deceased.....Ap 88

Prasad, C.
An Interferometric Technique for Temperature and Concentration Measurement for an Air-Water Interface [70-WA/Temp-1] (*A*)...My 54

Precession
Measurement of Energy Dissipation in a Liquid-Filled, Precessing Spherical Cavity [71-APM-4] (*A*).....S 55

Precipitation, Precipitators
Coming: The New York Banana (*BTR*).....S 38
SST vs. the Rain Drop (*BTR*).....Je 34

Precipitation Hardening
Embrittlement of Precipitation Hardenable Nickel-Base Alloys by Oxygen [71-Met-D] (*A*)....Ag 48

Prediction Methods
See also Benson-Wallace Method
Failure Prediction Through the Theory of Stochastic Excursions of Extreme Vibration Amplitudes [71-Vibr-60] (*A*).....N 53

Prediction Methods (*Continued*)
A Generalized Static Model for Fluidic Impact Modulators [70-WA/Flcs-2] (*A*) ..... Je 43
A Numerical Method for Predicting the Pressure History of a Sonic Boom Wave Incident on Arbitrarily Oriented Plane Walls [70-WA/APM-9] (*A*) ..... My 57
Predicting Behavior of Metals (*BTR*) ..... F 49
Predicting Machine Failure (*BTR*) ..... Ag 39
On the Prediction of Aerodynamically Created Sound Pressure Level of Control Valves [70-WA/FE-28] (*A*) ..... F 74
Prediction of Silencer Performance Using Transmission Line Theory [71-GT-8] (*A*) ..... Ag 44
Prediction of the Geometry Changes of the Free Boundary During Upsetting by the Slip-Line Theory [70-WA/Prod-17] (*A*) ..... Mr 61
A Prediction of Water-Entry Cavity Shape [70-WA/FE-8] (*A*) ..... F 72
Prentice, D. B. deceased ..... N 93
Presby, L. Q. deceased ..... N 93
Presses
9500-Ton Extrusion Press (*OS*) ..... My 50
Pressure Technology
Arbitrary Mean Flow in Adverse Pressure Gradients [70-WA/FE-10] (*A*) ..... F 72
Bending of Cylindrical Shells by Initial Parameter Method [70-WA/PVP-2] (*A*) ..... F 75
A Continuous, Automatic, High-Strength, High-Capacity Plant to Manufacture Sodium Hypochlorite at Atmospheric Pressure [70-WA/PID-7] (*A*) ..... Mr 63
Creep Buckling of Thin-Walled Circular Cylindrical Shells Subject to Radial Pressure and Thermal Gradients [70-WA/APM-8] (*A*) ..... My 57
Development and Testing of Techniques for Oscillating Pressure Measurements Especially Suitable for Experimental Work in Turbomachinery [71-FE-28] (*A*) ..... S 52
Effect of Artificial Surface Roughness on Heat Transfer and Pressure Drop for a High Prandtl Number Fluid in Laminar Flow [71-HT-36] (*A*) O 63
Fatigue-Crack Growth Rates and Fracture Toughness Study of Welded Aluminum Alloy 5083 [70-WA/PVP-5] (*A*) ..... F 76
Fatigue of Cylinders Subjected to Pulsating Internal Pressure [71-PVP-15] (*A*) ..... Ag 51
Flow and Pressure Recovery in Wall-Attachment Fluid Amplifiers [70-WA/Flcs-9] (*A*) ..... Je 43
Fluidic Instrument Pressure Regulator [70-WA/Flcs-4] (*A*) ..... Je 43
Gas Flow Control Employing Temperature and Pressure Compensation [70-WA/Aut-14] (*A*) F 70
Heat-Resistant Pressure Probe with High-Frequency Response (*NTB*) ..... Ag 36
Hot Isostatic Processing [based on 70-PVP-2] F 33
The Influence of Residual Stresses on the Collapse Pressure of Cold Pressed Spherical Shells [70-WA/UnT-1] (*A*) ..... Je 45
Light Gas Gun for Powder Compaction [based on 70-WA/PT-4] ..... Je 18
Laboratory-Size Light Gas Gun—Design and Operation [70-WA/PT-4] (*A*) ..... Mr 65
Liquid Distributions of a Low Pressure Drop Injection System-Gas Turbine "Vaporizer" Design [71-GT-38] (*A*) ..... Ag 45
On the Measurement of Fluctuating Pressure in the Mixing Zone of a Round Jet [71-FE-31] (*A*) S 53
A Modified Linear Membrane Theory for the Pressurized Toroid [70-WA/APM-49] (*A*) Je 48
Multilayer Vessels for High Pressures [based on 70-Pet-32] ..... Mr 34
Noise Abatement in Industry
Interaction of Sound and Structures
Response of Structures to Nonhomogeneous Random Pressure Fields [70-WA/DE-11] (*A*) ..... F 66, Ap 56
A Numerical Method for Predicting the Pressure History of a Sonic Boom Wave Incident on Arbitrarily Oriented Plane Walls [70-WA/APM-9] (*A*) ..... My 57
On the Prediction of Aerodynamically Created Sound Pressure Level of Control Valves [70-WA/FE-28] (*A*) ..... F 74
Shear Strength and Friction of Polymers Under High Pressure [70-WA/PT-1] (*A*) ..... Mr 65
Shear Strength of Beryllium, Uranium, and Tungsten as a Function of Strain, Strain Rate, and Pressure [70-WA/PT-2] (*A*) ..... Mr 65
Steel Heavyweight (*BTR*) ..... Mr 50
Stress Analysis of Thin Elasto-Plastic Shells [70-WA/PVP-3] (*A*) ..... F 76
Stress Resultants and Out-of-Plane Deformations in Stiff Rings Attached to Elastic Cylinders and Subject to Concentrated Loads [70-WA/PVP-1] (*A*) ..... F 76
Stresses in Multilayered Structures Under High-Rate Pressure Loads [70-WA/UnT-14] (*A*) Je 46
The Turbulent Boundary Layer with Mass Transfer and Pressure Gradient [71-APM-2] (*A*) S 55
Upper Bounds to Limit Pressures of Branch-Pipe Lateral Connections
Part I: Bounds for Branch/Pipe Diameter Ratios Smaller than 0.7 [71-PVP-43] (*A*) ..... S 48
Part II: Bounds and Reliability for Branch/Pipe Diameter Ratios Larger than 0.7 [71-PVP-44] ..... S 48
The Use and Application of Subatmospheric Pressures in Sterilization Processes—Vapor-Phase Sterilization [70-WA/PID-13] (*A*) Mr 64
Pressure Vessels and Piping
See also Bursting; Chambers, Hyperbaric; Compression; Cylinders; Plates; Power Plants; Reservoirs; Shells; Shields; Steel; Tanks, Fuel; Welds
Acrylic Pressure Hull for Submersible NEMO [71-UnT-2] (*A*) ..... D 46
An Anaerobic Biochemical Laboratory [71-PVP-10] (*A*) ..... Ag 51
Analysis of Brittle Fractures During Fabrication and Testing [71-PVP-53] (*A*) ..... S 50
Analysis of Stresses in Pressurized Welded Pipe in the Creep Range [71-PVP-66] (*A*) ..... S 50
An Analytical Basis for Notch Sharpening by Fatigue [71-PVP-46] (*A*) ..... Ag 53
Applications of Room Temperature Three-Dimensional Photoelastic Techniques [71-PVP-61] (*A*) ..... S 50
Applied Industrial Shielding [71-PVP-55] (*A*) S 48
Approximate Stress Analysis of Pressurized Bore Intersections in Rectangular Blocks [71-PVP-35] (*A*) ..... Ag 53
Behavioral and Stress Analysis of the NEMO Type Acrylic Hulls [70-WA/UnT-8] (*A*) ..... Je 45
Buckling of Vessels Composed of Combinations of Cylindrical and Spherical Shells [70-WA/APM-19] (*A*) ..... My 58
Certification for Material Safety of Hyperbaric Facilities [71-PVP-65] (*A*) ..... S 50
Circumferential Welds in Multilayer Pressure Vessels [70-WA/PVP-6] (*A*) ..... F 76
Combined Elastic-Plastic-Creep Analysis of Two-Dimensional Bodies [71-PVP-30] (*A*) ..... Ag 52
Design, Fabrication, Inspection and Testing of Multiwall Pressure Vessels [71-PVP-57] (*A*) S 50
Design for In-Service Inspection of Boiling Water Reactor Pressure Vessels [71-PVP-59] (*A*) ..S 50
Design of Pressure Vessels for Optimized Cost [70-WA/PVP-4] (*A*) ..... F 76
The Effective Utilisation of Yield Strength [71-PVP-11] (*A*) ..... Ag 51
Elastic-Plastic Analysis of Thick-Walled Pressure Vessels with Sharp Discontinuities [71-PVP-23] (*A*) ..... Ag 52
Experimental Determinations of Plastic Collapse Loads for Pipe Elbows [71-PVP-37] (*A*) ..Ag 53
Experimental Stress Analysis of 24-in. Tees [71-PVP-28] (*A*) ..... Ag 52
Fatigue and Fracture Reliability Analysis of Pressure Vessels [71-PVP-47] (*A*) ..... S 48
Fracture Mechanics and Nondestructive Testing of Brittle Materials [71-PVP-4] (*A*) ..... Ag 50
Fracture of Structural Metals as Related to Pressure-Vessel Integrity and In-Service Monitoring [71-PVP-60] (*A*) ..... S 50
Fracture Safety Analysis Concepts for Nuclear Pressure Vessels, Considering the Effects of Irradiation [70-WA/Met-2] (*A*) ..... My 52
Hemodynamic Flow in Anisotropic, Viscoelastic Thick-Wall Vessels [70-WA/APM-59] (*A*) Je 49
An Improved Finite Difference Method Applied to Thin Shells [71-PVP-24] (*A*) ..... Ag 52
Investigation of Cracking in Nuclear Reactor Primary Piping System [71-PVP-33] (*A*) ..Ag 53
Multilayer Vessels for High Pressures [based on 70-Pet-32] ..... Mr 34
Nuclear Code Class, Safety Class and Quality Administration: How They Tie Together [71-PVP-56] (*A*) ..... S 48
Photoelastic Study and Fatigue Tests of a Contoured, Integrally Reinforced Branch Connection [71-PVP-5] (*A*) ..... Ag 50
A Reassessment of Fracture-Safe Operating Criteria for Reactor Vessel Steels Based on Charpy-V Performance [70-WA/Met-1] (*A*) ..... My 52
Repair of Primary Pressure Systems Piping in a Nuclear Power Plant [71-PVP-50] (*A*) Ag 50, S 48
Safety Certification of a Man-Rated Hyperbaric Facility [71-PVP-63] (*A*) ..... S 50
Shakedown of Pressure Vessels with Ellipsoidal Heads [71-PVP-34] (*A*) ..... Ag 53
Spherical Acrylic Pressure Hulls for Undersea Exploration [70-WA/UnT-3] (*A*) ..... Je 45
Strain Concentration Analysis Using the Finite Element Method [71-PVP-39] (*A*) ..... Ag 53
Stress Analysis of B16.9 Tees by the Finite Element Method: A Progress Report [71-PVP-40] (*A*) ..... Ag 53
Use of Fracture Mechanics in Reactor Vessel Surveillance [70-WA/Met-3] (*A*) ..... My 52
Price, A. J.
Noise Abatement in Industry
Interaction of Sound and Structures
Sound and Vibration Transmission Through Panels and Tie Beams Using Statistical Energy Analysis [70-WA/DE-2] (*A*) F 65, Ap 55
Price, C. F.
Velocities of Fragments from Bursting Gas Reservoirs [71-PVP-14] (*A*) ..... Ag 51
Price, D. C.
Flow and Performance Characteristics for Non-Vented Vortex Amplifiers [70-WA/Flcs-18] (*A*) Je 44
Price, T. deceased ..... O 91
Priede, T.
Noise Abatement in Industry
Engine Combustion and Noise
Origins of Reciprocating Engine Noise—Its Characteristics, Prediction, and Control [70-WA/DGP-3] (*A*) ..... Ap 58
Prime Movers
Experience with Gas Turbines as Prime Movers for Underground Storage of Natural Gas [71-GT-27] (*A*) ..... Jl 36
Operating Experience and New Approaches Provide Basis for Portable 3500-hp Prime Mover Package [71-GT-51] ..... Jl 38
Prime Movers Committee Awards
See Honors
Printing
Polydyne Cam Mechanisms for Typehead Positioning [71-Vibr-97] (*A*) ..... N 54
Private Enterprise
The Role of Private Enterprise in a Post-Industrial Society
1: Education, Technology and Business, A Case Study of Business in the Future—Problems and Opportunities (*TL*) ..... Ag 71
Probes, Probing
On Aerodynamic Disturbances Caused by Single Hot-Wire Probes [71-APM-T] (*A*) ..... O 59
Heat-Resistant Pressure Probe with High-Frequency Response (*NTB*) ..... Ag 36
A Probe Technique for Determining the Thermal Conductivity of Tissue [70-WA/HT-18] (*A*) Ap 59
Problem Solving
Tolerance Analysis of Mechanisms Using PA-300: A General Probabilistic Problem Solving Language [70-Mech-44] (*A*) ..... Ja 50
Probstein, R. F.
New ASME Freeman Scholars Selected; Reviews to Be Presented at WAM ..... Je 56
Process Engineering
Materials [1971 outlook] (*NR*) F 83
Process Industries
See also Coal; Ecology; Flow; Gases; Pumps; Sterilization; Water
ASME Panel Examines Progress and Current Needs in Gas Turbine Codes and Standards Ap 77
Combustion Noise and Its Control in Process Plant Furnaces [71-Pet-6] (*A*) ..... D 47
A Continuous, Automatic, High-Strength, High-Capacity Plant to Manufacture Sodium Hypochlorite at Atmospheric Pressure [70-WA/PID-7] (*A*) ..... Mr 63
Converting Coal to Gas (*NB*) ..... Mr 73
Design and Operation of Large-Scale Process Heat-Transfer Research Plants [70-WA/HT-21] (*A*) Ap 60
Energy Systems in Large Process Plants [71-Pet-13] (*A*) ..... D 48
Engineering a Better Environment
2: High-Speed Interurban Transportation Systems
Fast Transit Link [based on 69-WA/PID-11] Fast Transit Link (*C*) (*D*) (*AC*) ..... Mr 66
5: Waste Water Treatment Enhances Environment [based on 70-PEM-19] ..... Mr 40
Evaluating Gas Turbines for Process Applications—Economic Guides for the Decision Maker [71-GT-50] (*A*) ..... Jl 38
Factors Affecting Design and Reliability of High Performance Gears in Process Compressor Trains [71-Pet-30] (*A*) ..... D 50
Fluorocarbon Turbine (*OS*) ..... Je 40
New Process Control Computer (*BTR*) ..... Mr 49
Nitric-Oxide Generation in a Simulated Spark-Ignition Engine [70-WA/PID-3] (*A*) ..... Mr 63
Process Plant Design for an Extremely Cold Environment [71-Pet-7] (*A*) ..... D 48
The Rationale of Monitoring Vibration on Rotating Machinery in Continuously Operating Process Plant [71-Vibr-96] (*A*) ..... D 53
Single Process Plant Application of a Gas Turbine Generator with Recovery Boiler [71-GT-30] (*A*) Jl 37
Thermal Discharges—An Engineering Problem [70-WA/PID-5] (*A*) ..... Mr 63

Production Engineering
See also Blanking; Chips; Craters; Deformation; Drawing; Drilling; Forging; Geometry; Grinders, Grinding; Inspection Equipment; Machining; Mathematics; Metals; Prediction Methods; Shapes; Strips; Tools; Wire
An Approach to Die Design in Extrusions [70-WA/Prod-16] (*A*) ..... **Mr 61**
Frictional Characteristics of Oxide-Treated and Untreated Tungsten-Carbide Tool [70-WA/Prod-5] (*A*) ..... **Mr 60**
Optimization of Multistage Machining System: Analysis of Optimal Machining Conditions for the Flow-Type Machining System [70-WA/Prod-15] (*A*) ..... **Mr 61**
The Static and Dynamic Behavior of Warren Type Machine Tool Structural Elements [70-WA/Prod-7] (*A*) ..... **Mr 60**
Strain Histories and Strain Distributions in a Cup Drawing Operation [70-WA/Prod-6] (*A*) **Mr 59**
Productivity
AMA Conference Highlights Productivity Through Motivation ..... **Ap 80**
Products
Workshop on Quality, Performance, and Cost (*EN*) **Ap 73**
Professionalism
See also Engineering Profession
Engineering a Profession [70-WA/Av-3] (*A*) .. **F 68**
Legal and Moral Responsibilities of Engineers Toward Public Safety [70-WA/Av-2] (*A*) .. **F 68**
On Professionalism (*C*) ..... **F 77**
Slow Death of a Free Profession [70-WA/Av-1] (*A*) **F 68**
Profilometry
Checking Workpiece Profiles (*OS*) ..... **Je 38**
Profitability
Techniques to Produce Short-Term Profitability in Research and Development Operations [71-DE-15] (*A*) ..... **Jl 46**
Progelhof, R. C.
Determination of the Radiation Properties of a Semi-Transparent Cylindrical Body Using the Monte Carlo Method [70-WA/HT-13] (*A*) **Ap 59**
Programming
See also Computer-Aided Functions; Computers; Data Systems; Geometry; Information Systems; Mathematics
A Mathematical Programming Method for Design of Elastic Bodies in Contact [70-WA/APM-52] (*A*) ..... **Je 49**
Tolerance Analysis of Mechanisms Using PA-300: A General Probabilistic Problem Solving Language [70-Mech-44] (*A*) ..... **Ja 50**
Projectiles
Free-Flight Shadowgraph (*PB*) ..... **My 48**
Light Gas Gun for Powder Compaction [based on 70-WA/PT-4] ..... **Je 18**
Laboratory-Size Light Gas Gun—Design and Operation [70-WA/PT-4] (*A*) ..... **Mr 65**
A Prediction of Water-Entry Cavity Shape [70-WA/FE-8] (*A*) ..... **F 72**
Propulsion
Electric Storage Batteries for Vehicle Propulsion [70-WA/Ener-7] (*A*) ..... **Ap 62**
Gas Turbine Propulsion for High Utilization Cargo Ships [71-GT-83] (*A*) ..... **Jl 41**
Prospecting
Thermal Prospecting (*BTR*) ..... **F 53**
Protective Systems
Using Systems Analysis to Improve Protective Design [71-Pet-22] (*A*) ..... **D 49**
Proximity Perturbation Method
A Proximity Perturbation Method for Linkage Kinematics [70-Mech-4] (*A*) ..... **Ja 46**
Pryle, W. H.
Fracture Toughness of ASTM A533 Grade B Class 1 Heavy Section Submerged Arc Weldments [71-Met-B] (*A*) ..... **Ag 48**
Pu, S. L.
Thermal Stresses Near a Prolate Spheroidal Inclusion [70-WA/APM-16] (*A*) ..... **My 58**
Public Safety
See also Safety
Bomb Threats (*NB*) ..... **Ap 72**
Legal and Moral Responsibilities of Engineers Toward Public Safety [70-WA/Av-2] (*A*) .. **F 68**
Puchir, Michael
Von Karman Vortices (*C*) ..... **My 60, S 59**
Puerto Rico
Arecibo Radar Gets Boost (*NB*) ..... **O 73**
Pulling, D. J.
Experimental Explanation of Deterioration in Heat Transfer to Supercritical Carbon Dioxide [71-HT-24] (*A*) ..... **O 62**
Pulling, N. H.
Automobile Bumper Testing with the Liberty Mutual Crash Simulator [71-Vibr-107] (*A*) **D 54**
Pulsation
The Effect of Pulse Shape on the Dynamic Plastic Deformation of Reinforced Circular Cylindrical Shells [71-PVP-31] (*A*) ..... **Ag 53**
Fatigue of Cylinders Subjected to Pulsating Internal Pressure [71-PVP-15] (*A*) ..... **Ag 51**
The Frequency Response of First and Second Order Lag Systems to Pulse Width Modulated Signals [70-WA/Aut-8] (*A*) ..... **F 70**
On Half Harmonics [70-WA/DE-16] (*A*) ..... **F 67**
Pulsation Mitigation Experience at the Willamar Waterflood Plant [71-Pet-12] (*A*) ..... **D 48**
Pulverizers
Used Tire Pulverizer (*BTR*) ..... **O 48**
Pumps, Pumping
Analysis of Pumping Rings [70-Lub-4] (*A*) .. **Ja 42**
An Analysis of Vane-in-Rotor Pump [70-WA/FE-21] (*A*) ..... **F 74**
Boiler and Pressure Vessel Code of ASME Section III, 1971 edition, becomes Reference Code for Draft Code for Nuclear Pumps and Valves ..... **S 90**
The Dynamic Delivery Rate and the Hydraulic Similarity of Injection Pumps for High-Speed Engines [71-DGP-3] (*A*) ..... **Ag 48**
Flow Transient Resulting from a Loss of Pumping Power in a Pressurized Water Nuclear Reactor [70-WA/NE-4] (*A*) ..... **My 55**
Further Considerations of Jerk Pump Design Factors for High Specific Output Diesel Engines [71-DGP-12] (*A*) ..... **Ag 49**
Manually Operated Elastomer Heat Pump (*NTB*) **Ap 47**
New Water Pump (*OS*) ..... **Je 39**
Optimum Vane Number and Angle of Centrifugal Pumps with Logarithmic Vanes [70-WA/FE-20] (*A*) ..... **F 74**
Pump Suction Piping Where NPSH Is Marginal [71-Pet-20] (*A*) ..... **D 49**
Reactor Recirculating Pumps (*OS*) ..... **Mr 53**
Thermodynamic Characteristics of Staged Mechanical Vacuum Pumps on Condenser Service [70-WA/PID-10] (*A*) ..... **Mr 64**
A Turbine-Speed, Main-Engine Fuel Pump [71-GT-24] (*A*) ..... **Ag 45**
Punches
On the Contact Problem of a Rigid Punch Pressed on a Viscoelastic Beam [71-AMPW-18] (*A*) **N 56**
Indentation of an Elastic Layer by an Array of Punches Moving with Steady Velocity [70-WA/APM-30] (*A*) ..... **Je 47**
Purdue University
Boelter Library to Purdue (*EN*) ..... **Jl 58**
Purdue University presents Harry Solberg Award for outstanding undergraduate teaching to Frederick B. Morse ..... **Jl 74**
Purdue University's Schools of Engineering "Distinguished Engineering Alumnus" awards go to Thomas W. Head and J. L. Monte Holman **Je 77**
Purdy, C. Melvin awarded Meritorious Service Citation by ASME Hudson Region II in recognition of outstanding service to ASME and membership of Region II **D 80**; receives Outstanding Leadership Award from Metropolitan Section of ASME ..... **Jl 75**
Purdy, D. M.
Stress Analysis of Composite Structures [71-DE-2] (*A*) ..... **Jl 44**
Putnam, D. F.
Water Management Results for a 90-Day Space Station Simulator Test [71-Av-6] (*A*) ..... **O 55**
Water Reclamation from Urine by Electrolysis-Electrodialysis [71-Av-11] (*A*) ..... **O 55**
Puzak, P. P.
Analysis of Radiation-Induced Embrittlement Gradients on Fracture Characteristics of Thick-Walled Pressure Vessel Steels [71-PVP-7] (*A*) **Ag 50**
Pyare, Ram
Plasma Radiation Effects in Tube Arc Heating [71-HT-18] (*A*) ..... **O 62**
Pyrolysis
Stress Analysis of High Temperature Pyrolysis Heater Coil Systems Subjected to Creep and Low Cycle Fatigue [71-Pet-17] (*A*) ..... **D 49**
Pyrophyllite
The Torsional Shear Strength of Pyrophyllite Under Increasing Confining Stress to Approximately 70 Kilobars [70-WA/PT-3] (*A*) ..... **Mr 65**

Q

Quackenbush, Claude F. deceased ..... **Ja 107**
Quality
The Adaptability of LWR Quality Assurance Standards to the LMFBR [71-NE-9] (*A*) .. **Jl 43**
Infrared Spectrophotometry as a Quality Control Tool [71-DE-44] (*A*) ..... **Ag 47**
Rancho SECO Quality Assurance Program [70-WA/NE-1] (*A*) ..... **My 55**
Tennessee Water Quality Control Act of 1971 Signed ..... **S 97**
Workshop on Quality, Performance, and Cost (*EN*) **Ap 73**
Quartz
Hot Wafers (*PB*) ..... **N 47**
Quattrone, P. D.
Electrochemical Carbon Dioxide Concentrating System [71-Av-21] (*A*) ..... **O 56**
Quenching
Big Vacuum Furnace (*PB*) ..... **Je 36, 37**
Cause and Prevention of Stress-Relief Cracking in Quenched and Tempered Steel Weldments [71-PVP-3] (*A*) ..... **Ag 49**
Quick, R. A.
The Jet Fuel Starter Goes Operational [71-GT-43] (*A*) ..... **Jl 38**
Quick Release
See Release
Quinn, W. J.
Failure Distributions of Mechanical Versus Electrical Components [71-DE-34] (*A*) ..... **Jl 47**

R

Racicot, R. L.
A First-Passage Approximation in Random Vibration [70-WA/APM-14] (*A*) ..... **My 58**
Radar
Arecibo Radar Gets Boost (*NB*) ..... **O 73**
Microwave Radiator (*PB*) ..... **S 44, 45**
Radcliffe, Charles W.
Mobility Analysis of Plane and Spatial Mechanisms [70-Mech-21] (*A*) ..... **Ja 47**
Radcliffe, D. W.
Mass Flux and Enthalpy Distribution in a Rod Bundle for Single- and Two-Phase Flow Conditions [70-WA/HT-8] (*A*) ..... **Ap 59**
Radiation
See also Wave Technology
Analysis of Radiation-Induced Embrittlement Gradients on Fracture Characteristics of Thick-Walled Pressure Vessel Steels [71-PVP-7] (*A*) **Ag 50**
Combined Conduction, Convection, and Radiation Effects in Optically Thin Tube Flow [71-HT-17] (*A*) ..... **O 62**
Determination of the Radiation Properties of a Semi-Transparent Cylindrical Body Using the Monte Carlo Method [70-WA/HT-13] (*A*) **Ap 59**
The Effect of Solar Radiation on the Energy Balance of a Controlled-Environment Greenhouse [70-WA/Sol-3] (*A*) ..... **F 64**
An Experimental and Analytical Study of Radiative and Conductive Heat Transfer in Molten Glass [70-WA/HT-10] (*A*) ..... **Ap 59**
Freeze-Drying of Bodies Subject to Radiation Boundary Conditions [71-HT-5] (*A*) ..... **O 61**
Infrared Detection of Gaseous Effluents (*BTR*) **Mr 48**
Infrared Radiation of Thin Plastic Films [70-WA/HT-15] (*A*) ..... **Ap 59**
Infrared Radiation Properties of Sulfur Dioxide [70-WA/HT-4] (*A*) ..... **Ap 58**
Performance of Air-Cooled Radiatively Heated Screen Matrices [70-WA/Sol-1] (*A*) ..... **F 64**
Plasma Radiation Effects in Tube Arc Heating [71-HT-18] (*A*) ..... **O 62**
Radiation and Response of Cylindrical Beams Excited by Sound [71-Vibr-84] (*A*) ..... **D 52**
Radiation Energy Density and Radiation Heat Flux in Small Rectangular Cavities [71-HT-16] (*A*) ..... **O 62**
The Radiation of Sound from an Airfoil Immersed in a Laminar Flow [71-GT-4] (*A*) ..... **Ag 44**
Radiative Energy Transfer Within a Nonisothermal Air Plasma [71-HT-G] (*A*) ..... **N 58**
Spectral Radiation from Alumina Powder on a Metallic Substrate [70-WA/HT-14] (*A*) .. **Ap 59**
Transient Combined Conductive and Radiative Heat Transfer [71-HT-22] (*A*) ..... **O 62**
Radiators
See Manned Space Station
Radio Astronomy Explorer (RAE)
Normal Mode Solution for the Vibrational Motions of Long Flexible Booms on the RAE Satellite [71-DE-J] (*A*) ..... **Jl 48**
Radioactivity
Maintenance of Radioactive Sodium Systems at EBR-II [71-NE-12] (*A*) ..... **Jl 43**
Tracer Tests for Nuclear Power Plant Steam Turbines [based on 69-WA/PTC-3] ..... **Ja 15**
Radiology
See Motion Pictures; Neutron Radiography
RAE
See Radio Astronomy Explorer

Ragazzini, John R. receives Rufus Oldenburger Medal at 1970 WAM.....Ja 70
Raghunathan, S.
Evaluation of Angle to be Subtended by the Spiral of Semispiral Casings [70-WA/FE-18] (*A*) F 74
Rahman, Z. U.
An Iterative Method for Analyzing Oscillating Cam Follower Motion [70-Mech-23] (*A*).....Ja 48
Rail Transportation
See also Locomotives; Railroad Cars and Equipment
Factors Affecting Axle Stresses [70-WA/RR-6] (*A*) Je 42
High-Speed Ice Train [based on 70-WA/RR-3] Je 14
High-Speed Ice Train (*C*).....Ag 57
Coefficient of Friction of Ice at High-Speed—Application to a High Speed Train [70-WA/RR-3] (*A*).....Je 42
The Hunting Behavior of Conventional Railway Trucks [70-WA/RR-2] (*A*).....Je 42
Plasma Treatment of Railway Rails to Improve Traction [70-WA/RR-1] (*A*).....Je 42
Rocket Train (*BTR*).....D 40
The Santa Fe Railway Locomotive Simulator and Coordinated Engineer's Training Program [71-RR-3] (*A*).....S 51
Survey Committee Report, 1969–1970
Progress in Railway Mechanical Engineering
Part I: Locomotives [70-WA/RR-9] (*A*) Je 41
Part II: Cars and Equipment [70-WA/RR-10] (*A*).....Je 41
Railroad Cars and Equipment
See also Locomotives; Rail Transportation
Componentization for Fatigue Design and Testing (Provides Reliability for Modern Freight Cars) [71-RR-2] (*A*).....S 51
Computer Analysis of a Railroad Freight Car Bolster Utilizing the Finite Element Method [70-WA/RR-7] (*A*).....Je 42
Design Considerations for Car Body Bolster Through Sill-Cushioned Underframe Freight Car [70-WA/RR-5] (*A*).....Je 42
An Evaluation of Recent Developments in Rail Car Truck Design [71-RR-1] (*A*).....S 51
Hydraulically Damped Motion of Gondola Cars [70-WA/RR-4] (*A*).....Je 42
Study of Rim Stresses Resulting from Static Loads on Different 36-Inch Railroad Wheel Designs [71-RR-4] (*A*).....S 51
Survey Committee Report, 1969–1970
Progress in Railway Mechanical Engineering
Part I: Locomotives [70-WA/RR-9] (*A*) Je 41
Part II: Cars and Equipment [70-WA/RR-10] (*A*).....Je 41
Rain Drops
SST vs. the Rain Drop (*BTR*).....Je 34
Ramalingam, S.
A Photoelastic Study of Stress Distribution During Orthogonal Cutting
Part 1: Workpiece Stress Distribution [70-WA/Prod-12] (*A*).....Mr 60
Part 2: Photoplasticity Observations [70-WA/Prod-13] (*A*).....Mr 60
Ramsdell, Roger G., Jr. elected Fellow ASME My 90
Ramsey, J. W.
Interaction of a Heated Jet with a Deflecting Stream [71-HT-2] (*A*).....O 60
Randomness
Some Considerations in Design, Specifications, and Evaluation of Digital Control System for Random Vibration Testing [71-Vibr-30] (*A*)...N 50
A Directed Random Search [70-WA/Aut-7] (*A*) F 69
Failure Prediction Through the Theory of Stochastic Excursions of Extreme Vibration Amplitudes [71-Vibr-60] (*A*).....N 53
On the First Excursion Probability in Stationary Narrow-Band Random Vibration [71-APM-19] (*A*).....S 56
A First-Passage Approximation in Random Vibration [70-WA/APM-14] (*A*).....My 58
An Investigation of Broad Band Random Vibration Simulation [71-Vibr-2] (*A*).....N 48
Large Amplitude Vibrations of Circular Plate on a Uniform Elastic Foundation [71-Vibr-9] (*A*) N 48
Noise Abatement in Industry
Interaction of Sound and Structures
Response and Internal Noise of a Fuselage to Random Excitation [70-WA/DE-9] (*A*) F 66, Ap 55
Response of Structures to Nonhomogeneous Random Pressure Fields [70-WA/DE-11] (*A*).....F 66, Ap 56
Nonlinear Vibration of Buckled Beams [71-Vibr-17] (*A*).....N 49
Ranganath, S.
Normal Impact of an Infinite Elastic Beam by a Semi-Infinite Elastic Rod [70-WA/APM-54] (*A*) Je 48
Ranlet, D.
Web-Stiffened Sandwich Structures [71-APM-8] (*A*).....S 55
Rao, B. M.
A Numerical Method for Predicting the Pressure History of a Sonic Boom Wave Incident on Arbitrarily Oriented Plane Walls [70-WA/APM-9] (*A*).....My 57
Rapid Transit
See also Transit Systems; Transportation
$40 Million for S. F. Rapid Transit (*NB*)...Je 59
High-Speed Ice Train [based on 70-WA/RR-3] Je 14
High-Speed Ice Train (*C*).....Ag 57
Coefficient of Friction of Ice at High Speed—Application to a High Speed Train [70-WA/RR-3] (*A*).....Je 42
Personal Rapid Transit Systems
To Be Installed, Tested at TRANSPO, Washington, D. C., 1972 (*NB*).....N 69
Rapier, Pascal M.
Relativity and the Mechanical Engineer (*C*)..Je 51
Rashid, Y. R.
Nonlinear Analysis of Two-Dimensional Problems in Concrete Creep [71-APMW-25] (*A*).....N 57
Rating
For Gas Turbines: New Standard Rating Point O 34
Rauschenplat, H. C.
Design, Fabrication, Inspection and Testing of Multiwall Pressure Vessels [71-PVP-57] (*A*) S 50
Ravera, R. J.
Emissions (*C*).....D 57
Rayleigh Numbers
Critical Rayleigh Numbers for Natural Convection of Water Confined in Square Cells with L/D from 0.5 to 8 [70-WA/HT-7] (*A*).....Ap 59
Rayleigh-Taylor Instability
Effects of Heat and Mass Transfer on Rayleigh-Taylor Instability [71-FE-7] (*A*).....Ag 54
Razinsky, E.
Confined Jet Mixing for Nonseparating Conditions [70-WA/FE-2] (*A*).....F 71
Rea, Joseph T. deceased.....F 106
Reactors
Creep Stress Distribution in Long, Cylindrical Reactor Pressure Vessels [71-PVP-29] (*A*) Ag 52
Fast Reactor Conferees Told '71 Year of Decision for Plutonium Reactor.....Je 68
Fast Reactor Fuel (*PB*).....Je 36, 37
Nuclear Power Expansion (*OS*).....Je 39
Reactor Recirculating Pumps (*OS*).....Mr 53
SEFOR Operating Experience [71-NE-7] (*A*) Jl 43
Zircaloy Reactor Vessel (*OS*).....D 44
Reactors, BWR
Design for In-Service Inspection of Boiling Water Reactor Pressure Vessels [71-PVP-59] (*A*) .S 50
Reactors, EBR
Applicability of EBR-II Experience to Commercial LMFBR's [71-NE-11] (*A*).....Jl 43
Maintenance of Radioactive Sodium Systems at EBR-II [71-NE-12] (*A*).....Jl 43
Reactors, FBR
Design of the Atomics International Fast Breeder Demonstration Plant [71-NE-16] (*A*).....Jl 44
Fast Breeder Reactors (*NB*).....Ja 63
LMFBR Availability Considerations [71-NE-14] (*A*).....Jl 44
Safety Criteria and Design for an FBR Demonstration Plant [71-NE-17] (*A*).....Jl 44
Selection of the Steam Generator for the Proposed 350-MW(e) Demonstration Plant [71-NE-5] (*A*) Jl 42
Reactors, FR
Fast Reactor Siting and Safety (AEC Regulatory Procedures and Views) [71-NE-4] (*A*).....Jl 43
Reactors, GCFR
Gas-Cooled Fast Breeder Reactor Designs [71-NE-2] (*A*).....Jl 42
Gas-Cooled Fast Reactor Refueling System [71-NE-8] (*A*).....S 57
Reactors, GCHTGR
Nuclear Fuel (*OS*).....Jl 34
Reactors, LMFBR
The Adaptability of LWR Quality Assurance Standards to the LMFBR [71-NE-9] (*A*)..Jl 43
Applicability of EBR-II Experience to Commercial LMFBR's [71-NE-11] (*A*).....Jl 43
Evolution of LMFBR Plant Design for Reliability and Availability [71-NE-3] (*A*).....Jl 42
LMFBR Availability Considerations [71-NE-14] (*A*).....Jl 44
LMFBR Fuel Shipping—Containment and Heat Transport [71-NE-6] (*A*).....Jl 42
A 1000-MWe LMFBR Steam Generator [71-NE-13] (*A*).....Jl 43
Power in the Year 2001
Part 4—Rock Burning.....D 27
Sea Burning.....D 30
Response of a Piped LMFBR to Primary System Pipe Rupture [71-NE-1] (*A*).....Jl 42
Sodium-Heated Modular Steam Generator Design and Development [71-NE-10] (*A*).....Jl 43
Reactors, LWR
The Adaptability of LWR Quality Assurance Standards to the LMFBR [71-NE-9] (*A*)..Jl 43
LMFBR Fuel Shipping—Containment and Heat Transport [71-NE-6] (*A*).....Jl 42
Reactors, Nuclear
Fracture Safety Analysis Concepts for Nuclear Pressure Vessels, Considering the Effects of Irradiation [70-WA/Met-3] (*A*).....My 52
Investigation of Cracking in Nuclear Reactor Primary Piping System [71-PVP-33] (*A*)..Ag 53
A Reassessment of Fracture-Safe Operating Criteria for Reactor Vessel Steels Based on Charpy-V Performance [70-WA/Met-1] (*A*) My 52
Steel Heavyweight (*BTR*).....Mr 50
Study of the Onset of Premature Heat-Transfer Crisis During Hydrodynamic Instability in a Full-Scale Reactor Channel [71-HT-11] (*A*) O 61
Use of Fracture Mechanics in Reactor Vessel Surveillance [70-WA/Met-3] (*A*).....My 52
Reactors, Phenix Fast
Phenix Design and Preliminary Studies on 1000-MWe Fast Reactor [71-NE-18] (*A*).....Jl 44
Reactors, Pressurized Water
Flow Transient Resulting from a Loss of Pumping Power in a Pressurized Water Nuclear Reactor [70-WA/NE-4] (*A*).....My 55
Reactors, SEFOR
SEFOR Operating Experience [71-NE-7] (*A*) Jl 43
Reactors, Thermionic
Thermionic Reactor Development [70-WA/Ener-13] (*A*).....Ap 62
Recession
Hanover Fair: No Recession (*OS*).....S 46
Reciprocating Machinery
An Approximate Solution to the Shuttle Heat-Transfer Losses in a Reciprocating Machine [70-WA/Ener-3] (*A*).....Ap 60
Minor Details Influence Useful Life of Packaged Reciprocating Compressor Unit [71-Pet-41] (*A*) D 51
Recirculation
Developing Cooling Tower Recirculation Factors from Field Test Data [70-WA/HT-22] (*A*) Ap 60
Reclaiming
High-Capacity Stockpiling and Reclaiming [70-WA/MH-6] (*A*).....My 53
Reclamation
Liquid Wire (*BTR*).....Jl 28
Recognition System Speaker
See Speaker Recognition System
Recoil
Shortest Lifetime Ever Recorded (*BTR*)....Ja 37
Recovery
Single Process Plant Application of a Gas Turbine Generator with Recovery Boiler [71-GT-30] (*A*) Jl 37
Recycling
See also Heat Recovery; Waste Handling
Design Students Take Waste Item and Turn It into Usable Products (*EN*).....Ag 68
Keeping Solvent (*PB*).....Ag 40
Reddy, Dermot acquires consulting engineering firm of Theodore J. Kauffeld which has Devenco Inc. as management and production division; becomes senior executive in affiliated company and continues as president of architect-engineer division.....Ja 105
Reddy, Y. R.
Optimum Vane Number and Angle of Centrifugal Pumps with Logarithmic Vanes [70-WA/FE-30] (*A*).....F 74
Redfield, J. A.
Sectionalized Compressible and Momentum Integral Models for Channel Hydrodynamics [71-HT-14] (*A*).....O 61
Reduction
Reduction of Nitrogen Oxides from Gas Turbines by Steam Injection [71-GT-58] (*A*).....Ag 46
Reverse Reduction Marine Drives for High Powered Gas Turbines [71-GT-82] (*A*).....Jl 41
Reed, T. O.
Effects of Polyurethane Foam on Fuel System Contamination [71-GT-54] (*A*).....Jl 39
Reese, Bruce A. named member of U. S. Army's Scientific Advisory Panel.....F 101
Refineries
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Refinery Flair System Injectors Redesigned for Noise Control [70-WA/Pet-4] (*A*) Ap 55
Reflection
Reflective Cooling Ponds [70-WA/Pwr-4] (*A*) My 54
The Wave Reflection Matrix in Beam Vibration Control [70-WA/Aut-1] (*A*).....F 69

Refrigeration
Cavity Resonance in Fractional Horsepower Refrigerant Compressors [71-Vibr-88] (*A*)..N 54
Design and Performance of a Compact Solar Refrigeration System [70-WA/Sol-4] (*A*)...F 64
Noise Study of Fractional Horsepower, Rotary Vane, Refrigerant Compressor [71-Vibr-89] (*A*) N 54
Solar-Powered Refrigeration [based on 70-WA/Sol-5].....Je 22
Economic Aspects of Solar-Powered Absorption Refrigeration [70-WA/Sol-5] (*A*).....F 65
Refueling Systems
Gas-Cooled Reactor Refueling Systems [71-NE-8] (*A*).....S 57
Refuse Treatment
See also Oil Spills; Waste Handling
Regional Air Quality Control—The Impact and Costs of Refuse Incineration [70-WA/Inc-1] (*A*) F 67
Reggiardo, L. J.
Goals Comment (*C*).....Ja 56
Registered Engineers
State Engineering Laws and Board Rules (*TL*)
"Synopsis of State Engineering Registration Laws and Policies and Procedures of State Boards".....Je 63
Registration
Your Professional License—An Opportunity (*Ed*) O 19
Registry
See United States Labor Department
Regulators
Fluidic Instrument Pressure Regulator [70-WA/Flcs-4] (*A*).....Je 43
Reid, Caryle receives ASME Gas Turbine Power Award at 16th Gas Turbine Conference, 1971.....Je 64, 65
Reid, K. N.
Characterization of Free and Impinging Axisymmetric Jets with and without Auxiliary Flows [70-WA/Flcs-6] (*A*).....Je 43
A Generalized Static Model for Fluidic Impact Modulators [70-WA/Flcs-2] (*A*).....Je 43
Reif, Z.
Application of Holographic Techniques to Turbine Disk Vibration [71-Vibr-105] (*A*).....D 54
Reilly, F. P., III
Experimental Fabrications of a High Strength, Low Alloy Steel by Means of Last Pass Temperature Control [71-Met-1] (*A*).....Ag 47
Reinberg, G. deceased.....S 99
Reinforcement
Analytical Investigations of Compact Reinforcement for Radial Nozzles in Spherical Shells [71-PVP-26] (*A*).....Ag 52
Reinhart, W. H.
Manufacturing Approaches to Resin Matrix Composite Airfoils for Gas Turbine Engines [71-GT-47] (*A*).....Ag 45
Reissner, E.
Pure Bending, Stretching, and Twisting of Anisotropic Cylindrical Shells [71-APMW-4] (*A*) N 55
Relativity
Relativity and the Mechanical Engineer (*C*) Je 51
Relaxation
See also Simulation Methods
Wave-Front Stress Relaxation in a One-Dimensional Nonlinear Inelastic Material with Temperature and Position Dependent Properties [70-WA/APM-20] (*A*).....My 58
Relays
Safety Considerations in the Selections of Switches and Relays [71-DE-33] (*A*).....Jl 47
Release Mechanisms
Easy Insert, Easy Release Fastener (*NTB*)..O 45
Foolproof Quick-Release Pin (*NTB*).....Ap 46
Radial Stress Release Phenomena in Plate Impact Experiments: Compression—Release [71-APMW-16] (*A*).....N 56
Reliability
Componentization for Fatigue Design and Testing (Provides Reliability for Modern Freight Cars) [71-RR-2] (*A*).....S 51
Evolution of LMFBR Plant Design for Reliability and Availability [71-NE-3] (*A*).....Jl 42
Power Increase and Reliability of Diesel Engines [71-DGP-11] (*A*).....Ag 49
Turbine-Generator Operation (*NB*).....N 68
Remmers, E. P.
The Dynamics of Gear Pair Systems [71-DE-23] (*A*).....Jl 46
Remote Control
See also Automatic Control; Control Systems
Economics of Remote Data Processing for Oil and Gas Production [71-Pet-39] (*A*).....D 51
Remp, George E. deceased.....Ap 88
Rensselaer Polytechnic Institute elects its 14th president, Richard J. Grosh.....O 89
Repair
Repair of Primary Pressure Systems Piping in a Nuclear Power Plant [71-PVP-50] (*A*) Ag 50, S 48
Research
See also Diebold Research Program
Design and Operation of Large-Scale Process Heat-Transfer Research Plants [70-WA/HT-21] (*A*) Ap 60
The Sky Above the Noise Below (*EN*).....Je 60
Student Summer Research (*EN*).....Je 60
World-Round Nickel Research (*PB*)....Mr 54, 55
Research and Development
Diesel Research and Development Techniques [71-DGP-13] (*A*).....Ag 49
R & D Forecast (*BTR*).....Mr 51
Techniques to Produce Short-Term Profitability in Research and Development Operations [71-DE-15] (*A*).....Jl 46
Reservoirs
Velocities of Fragments from Bursting Gas Reservoirs [71-PVP-14] (*A*).....Ag 51
Residues Method
The Method of Residues for the Synthesis of Coupler Curve Generating Mechanisms [70-Mech-53] (*A*).....Ja 51
Resiliency
Determination of the Duration of Memory for Viscoelastic Materials [70-WA/APM-4] (*A*) My 57
Resin
Manufacturing Approaches to Resin Matrix Composite Airfoils for Gas Turbine Engines [71-GT-47] (*A*).....Ag 45
Resonance
See also Cavities
Cavity Resonance in Fractional Horsepower Refrigerant Compressors [71-Vibr-88] (*A*)..N 54
On Elastomer Mount Design When Machine and Foundation Are Multi-Resonant Structures [71-Vibr-51] (*A*).....N 52
Parametric Resonance of Stiffened Rectangular Plates [71-APM-26] (*A*).....S 57
Resonance Classification in a Cubic System [71-APM-24] (*A*).....S 57
Resonance Response Criteria of a Damped Three-Layered Beam [71-Vibr-102] (*A*).....D 54
The Resonant Response of a Rectangular Plate with an Elastic Edge Restraint [71-Vibr-6] (*A*)..N 48
Resources
Beneficial Uses of Waste Heat [70-WA/Ener-10] (*A*).....Ap 62
Engineering a Better Environment
9: Waste Heat Uses Cut Thermal Pollution Jl 15
Waste Heat Uses (*C*) (*AC*).....O 66
Uses of Waste Heat [70-WA/Ener-6] (*A*) Ap 61
Response
On the Influence of Water Turbine Characteristic on Stability and Response [70-WA/FE-15] (*A*) F 73
Responsibility
See also Public Safety
As the President Sees It
The Modern Citizen Engineer.....N 94
Growth ≠ Progress?.....Ap 20
Growth ≠ Progress?.....(*C*) (*D*) Je 52, Jl 50 S 58; (*C*) (*AC*) S 58, O 64
"The Revolt of the Engineers: Social Responsibility and the American Engineering Profession" (*BR*) O 66
Ten Years' Progress in Management, 1960–1970
II: Management's Social Responsibilities
The Engineer's Responsibility for Product Safety [70-WA/Mgt-3] (*A*).....Mr 57
Retrieval
Instant Retrieval System for Drawings [71-DE-19] (*A*).....Jl 46
Photo Briefs
Swing Shift Lift Truck; Tape-Controlled Stacker Systems.....Jl 32, 33
Revolution
Aerodynamic Approximations for Unsteady Supersonic Flow Through Ducts of Revolution [71-Vibr-23] (*A*).....N 50
Axial Vibration Transmission Characteristics of Shells of Revolution [71-Vibr-7] (*A*).....N 48
A Blade Theory of an Impeller with an Arbitrary Surface of Revolution [71-GT-17] (*A*).....Jl 36
Existence Criteria of an Overconstrained Spatial Mechanism with Three Revolute Pairs and One Spherical Pair [70-Mech-72] (*A*).....Ja 52
Reyes-Guerra, David R. becomes executive secretary of ECPD.....N 89
Reynolds, Edward E. named manager of operations for Stellite Div., Cabot Corp., responsible for all manufacturing at company's Kokomo, Ind., Bethel, Conn., and Norwalk, Calif., facilities.....F 101
Reynolds Equation
Conditions for the Rupture of a Lubricating Film Part II: New Boundary Conditions for Reynolds Equation [70-Lub-3] (*A*)...Ja 42
Reynolds Numbers
On the Behavior of Bladings in the Small Reynolds Number Regime [70-WA/GT-11] (*A*)....My 56
Effects of Reynolds Number on Performance Characteristics of a Centrifugal Compressor [71-GT-25] (*A*).....Jl 36
Low Reynolds Number Turbulent Flow in Large Aspect Ratio Rectangular Ducts [71-FE-A] (*A*) S 53
A Two-Dimensional Analysis of a Heated Free Jet at Low Reynolds Numbers [70-WA/FE-3] (*A*) F 71
The Unsteady Wake of an Oscillating Cylinder at Low Reynolds Number [71-APM-33] (*A*)..O 59
RFI
A Mechanical Engineer Looks at EMI/RFI Shielding [70-WA/DE-13] (*A*).....F 67
Rheology
Fluid Rheological Effects in Sliding Elastohydrodynamic Point Contacts with Transient Loading
1—Film Thickness [70-Lub-21] (*A*).....Ja 45
2—Traction [70-Lub-22] (*A*).....Ja 45
Rhodes, Allen F. joins A C F Industries, Inc., as vice-president of corporate planning and development, located in New York City Mr 84; receives Outstanding Leadership Award from Metropolitan Section of ASME Jl 75
As the President Sees It
The ASME and Economic Security.....Ja 108
Publication: A User Viewpoint! A Value System?.....My 92
ASME President's Luncheon Address at 1970 Winter Annual Meeting
Evolution and Technology in Conflict....Mr 18
Rhodes, F. M.
Performance Testing of Industrial Power Equipment [71-IPwr-8] (*A*).....S 54
Rhodes, H. M.
Skimming Oil from Basins and Lagoons (*C*) Je 51
Ribs, Ribbing
Stresses in a Pressurized Ribbed Cylindrical Shell with a Reinforced Circular Hole Interrupting a Rib [71-PVP-8] (*A*).....Ag 51
Rice, I. G.
Operating Experience and New Approaches Provide Basis for Portable 3500-hp Prime Mover Package [71-GT-51] (*A*).....Jl 38
Rice, J. K.
Coal Mining in an Oxygen-Free Atmosphere [70-WA/PID-4] (*A*).....Mr 63
Rice, J. R.
The Part-Through Surface Crack in an Elastic Plate [71-APM-20] (*A*).....S 56
Rice, R. A.
System Energy as a Factor in Considering Future Transportation [70-WA/Ener-8] (*A*).....Ap 61
Rice, W.
Integral Method for Flow Between Corotating Disks [70-WA/FE-4] (*A*).....F 72
Rice, W. B.
Some Effects of Injecting Cutting Fluids Directly into the Chip-Tool Interface [70-WA/Prod-2] (*A*).....Mr 59
Richards, C. G.
A Numerical Study of the Flow in the Vortex Angular-Rate Sensor [70-WA/FE-5] (*A*)...F 72
Richards, Lucien M. deceased.....My 91
Richards (Charles Russ) Memorial Award
See Honors; Pi Tau Sigma Nominations
Richardson, Edward A.
Growth ≠ Progress? (*C*).....S 58
Von Karman Vortices (*C*).....Jl 52
Richardson, Henry M. named president and chief executive officer by DeBell & Richardson, Inc. and continues as chairman of the board.....D 80
Richardson, J. D.
Harmonic Response of Masses on an Elastic Half Space [71-Vibr-59] (*A*).....N 53
Ridgway, William C. deceased.....Ap 88
Riedel, Harvey J. joins Peter F. Loftus Corp. as project engineer.....S 97
Rieger, N. F.
Unbalance Response of an Elastic Rotor in Damped Flexible Bearings at Supercritical Speeds [70-WA/Pwr-3] (*A*).....My 55
Ricke, Vernon W. named chief environmental engineer by Aluminum Company of America N 89
Rigidity
On the Contact Problem of a Rigid Punch Pressed on a Viscoelastic Beam [71-APMW-18] (*A*) N 56
Dynamic Response of a Rigid Footing Bonded to an Elastic Half Space [71-APMW-15] (*A*) N 56
Large Amplitude Vibration of a Circular Plate with Concentric Rigid Mass [71-APMW-11] (*A*) N 55
Optimal Trajectories and Controls for Systems of Coupled Rigid Bodies [71-Vibr-82] (*A*).....D 52
Rigid-Body Approximations to Turbulent Motion in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-Y] (*A*).....O 60

Rigidity (*Continued*)
On the Smallest Circle Determined by Three Positions of a Rigid Body [70-Mech-11] (*A*) Ja 47
Steady Motion of a Rigid Strip Bonded to an Elastic Half Space [70-WA/APM-56] (*A*)..Je 49
Transient Deformation of Slender Rods Impacting Rigid Plates [71-Vibr-93] (*A*).....D 53
Riley, Joseph D.
High-Speed Ice Train [based on 70-WA/RR-3] Je 14
Coefficient of Friction of Ice at High Speed—Application to a High Speed Train [70-WA/RR-3] (*A*).....Je 42
Rim, K.
The Optimum Design of Spatial Frames Using the Method of Constrained Steepest Descent with State Equations [71-DE-H] (*A*).....Jl 48
Rimbey, D. H.
Transient Method of Calibrating a Piezoelectric Accelerometer for the High g-Level Range [71-Vibr-43] (*A*).....N 52
Rims
Study of Rim Stresses Resulting from Static Loads on Different 36-Inch Railroad Wheel Designs [71-RR-4] (*A*).....S 51
Rings
Analysis of Pumping Rings [70-Lub-4] (*A*)..Ja 42
An Analysis of the Forging of a Flat Ring [70-WA/Prod-28] (*A*).....Mr 62
Buckling and Postbuckling Behavior of Clamped Shallow Spherical Shells Under Axisymmetric Ring Loads [71-APM-9] (*A*).....S 56
Dynamics of a Submerged Ring-Stiffened Spherical Shell [70-WA/APM-42] (*A*).....Je 47
An Experiment on Laser-Generated Stress Waves in a Circular Elastic Ring [71-APMW-2] (*A*) N 55
Fiber Risers (*PB*).....Ap 50
Noise Abatement in Industry
Interaction of Sound and Structures
Underwater Behavior of Free-Flooded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
Operating Experience with Filled PTFE Piston Rings [70-WA/Lub-1] (*A*).....Ap 65
Stress Resultants and Out-of-Plane Deformations in Stiff Rings Attached to Elastic Cylinders and Subject to Concentrated Loads [70-WA/PVP-1] (*A*).....F 76
Thermal Buckling and Snapping of a Circular Ring [71-DE-B] (*A*).....Jl 48
Rios, P. A.
An Approximate Solution to the Shuttle Heat-Transfer Losses in a Reciprocating Machine [70-WA/Ener-3] (*A*).....Ap 60
Rippon, G. E.
An Analytical Model Predicting Fixed Index Assembly Machine Performance [71-Vibr-63] (*A*) N 53
Risers
Drilling Riser Stress Measurements [71-Pet-1] (*A*) D 47
Fiber Risers (*PB*).....Ap 50
Risteen, F. C.
Hydraulically Actuated Quadraplegic Arm Appliance with Six Degrees of Freedom [70-Mech-55] (*A*).....Ja 51
A Single Joystick Hydraulic Control System with Six Independent Simultaneous Velocity Proportional Degrees of Freedom [70-Mech-54] (*A*) Ja 51
Ritz Method
Application of Rits's Method to Thin Elastic Shell Analysis [71-APM-32] (*A*).....O 59
Ritter, R. B.
Design and Operation of Large-Scale Process Heat-Transfer Research Plants [70-WA/HT-21] (*A*) Ap 60
Robb, J. D.
Lightning Protection Approaches for Gas Turbine Controls [71-GT-29] (*A*).....Jl 37
Robbins, Nathaniel, Jr.
The Engineer's Knowledge: Is It Transferable from One Industry to Another? [based on 71-DE-28].....O 26
Shifting from One Industry to Another; How Transferable Is the Engineer's Knowledge? [71-DE-28] (*A*).....Jl 47
Roberts, B.
On the Behavior of Bladings in the Small Reynolds Number Regime [70-WA/GT-11] (*A*).....My 56
Roberts, Blaine
Experimental Stress Analysis of 24-in. Tees [71-PVP-28] (*A*).....Ag 52
Roberts, Cary R. deceased.....Ja 107
Roberts, J.
Selection of the Steam Generator for the Proposed 350-MW(e) Demonstration Plant [71-NE-5] (*A*) Jl 42
Roberts, J. W.
An Investigation of Broad Band Random Vibration Simulation [71-Vibr-2] (*A*).....N 48
Roberts, O. S.
Arrangement and Operation of a Bulk Material-Handling Terminal [71-WA/MH-3] (*A*)..My 53
Roberts, R.
Fatigue-Crack Growth Rates and Fracture Toughness Study of Welded Aluminum Alloy 5083 [70-WA/PVP-5] (*A*).....F 76
Mode II Fatigue Crack Propagation [71-Met-J] (*A*) S 54
Roberts, Robert E. reelected ASME Region I Vice-President 1972–1974.....N 85
Roberts, V.
A Porous Black Model for Cancellous Bones [70-WA/BHF-2] (*A*).....Ap 62
Roberts' Cognate
Roberts' Cognate of Space Five-Link RHHHH and HHRHH Mechanisms [70-Mech-36] (*A*) Ja 49
Robertson, B. J. deceased.....Ag 87
Robertson, Richard B. elected to Honorary Membership in Pi Tau Sigma by Texas A & M chapter.....Je 77
Robots
Robot Forges Ahead (*BTR*).....Je 35
Rochester Institute of Technology offers bachelor degree program in engineering technology from new School of Applied Science (*EB*).....My 77
Rocke, R. D.
A Strain Energy Comparison of Discrete Modeling for Vibrating Continuous Systems [71-Vibr-5] (*A*) N 48
Rockefeller, H. E. deceased.....N 93
Rockers, Rocking
Design of Spatial Four-Link Crank-Rocker Mechanisms With or Without a Passive Constraint [70-Mech-7] (*A*).....Ja 46
Dimensional Synthesis of the Spherical Double-Rocker Mechanism [70-Mech-81] (*A*).....Ja 54
Hydraulically Damped Motion of Gondola Cars [70-WA/RR-4] (*A*).....Je 42
Rockets
Free-Flight Shadowgraph (*PB*).....My 48
Rocks
Power in the Year 2001
Part 4—Rock Burning.....D 27
Sea Burning.....D 30
Rockwell, W. F. becomes honorary chairman of Rockwell Manufacturing Co.....O 89
Rockwell, Willard F., Jr. elected chairman of Rockwell Manufacturing Co. O 89; receives award for Outstanding Achievement in Management from AIIE.....Jl 74
Roddis, Louis H. receives Outstanding Leadership Award from Metropolitan Section of ASME.....Jl 75
Rodgers, C.
Aerodynamic Development of a Radial Compressor for a 10-kw Turboalternator [70-WA/GT-7] (*A*) My 56
Rodgers, C. F.
Processing Revisions of Specifications in Engineering [71-DE-46] (*A*).....Ag 47
Rodgers, Frank W. joins Richardson Co. as general manager of Organic Chemicals Div. with headquarters at company's executive offices in Des Plaines, Ill.....Je 77
Rodgers, J. D.
Radial Flow Measurements of Hydrogen Near Its Critical Point in a Heated Cylindrical Tube [71-HT-25] (*A*).....O 62
Rodgers, Michael J. appointed regional manager in Power Services of Combustion Engineering, Inc., located in Philadelphia.....S 97
Rodriguez, D. A.
Surge Waves in Stranded Springs [71-Vibr-94] (*A*) D 53
Rods
On the Initial Speed of Elastic-Plastic Boundaries in Longitudinal Wave Propagation in a Rod [70-WA/APM-50] (*A*).....Je 48
Mass Flux and Enthalpy Distribution in a Rod Bundle for Single- and Two-Phase Flow Conditions [70-WA/HT-8] (*A*).....Ap 59
Normal Impact of an Infinite Elastic Beam by a Semi-Infinite Elastic Rod [70-WA/APM-54] (*A*) Je 48
Transient Deformation of Slender Rods Impacting Rigid Plates [71-Vibr-93] (*A*).....D 53
Roe, Kenneth A.
As the President Sees It
Codes and Standards.....D 84
Interfacing the Present with the Future...O 92
The Modern Citizen Engineer.....N 94
The Pursuit of Goal 1.....S 100
Support for the Goals.....Ag 88
Roe, Ralph Coats deceased.....O 91
Controlled Flash Evaporation.....My 27
Rogers, Edgar A. deceased.....Mr 88
Rogers, T. G.
Plane Deformations of Incompressible Fiber-Reinforced Materials [71-APM-V] (*A*).....O 60
Rogowski, A. R.
The Interaction of Air Motion, Fuel Spray, and Combustion in the Diesel Combustion Process [71-DGP-2] (*A*).....Ag 48
Rohrer, Douglas P. deceased.....Mr 88
Rohsenow, Warren M. receives 1970 Max Jakob Memorial Award from ASME Heat Transfer Division.....O 79, 80
Rolamite
Computation of Force Traces for the Rolamite [70-Mech-10] (*A*).....Ja 46
Rolamite—A Tool in Hysteresis Measurement [71-Vibr-27] (*A*).....N 50
Rollers, Rolling
Bubble Level as Pitch and Roll Sensor (*NTB*) O 44
Dynamic Shock Phenomena in Rolling Mills [71-Vibr-95] (*A*).....D 53
Hydrodynamic Lubrication in Rolling of Thin Strips [71-Prod-2] (*A*).....Jl 48
Inhibition of Water-Accelerated Rolling-Contact Fatigue [70-Lub-9] (*A*).....Ja 42
Lubricant and Ball Steel Effects on Fatigue Life [70-Lub-16] (*A*).....Ja 44
The Minimum Gage Problem in Thin Strip Rolling [70-Lub-24] (*A*).....Ja 45
Oil Film Thickness and Rolling Friction in Elastohydrodynamic Point Contact [70-Lub-3] (*A*) Ja 42
Optical Analysis of Ball Bearing Starvation [70-Lub-19] (*A*).....Ja 44
Rolling-Element Fatigue and Lubrication with Fluorinated Polyethers at Cryogenic Temperatures [70-Lub-17] (*A*).....Ja 44
Roll-On/Roll-Off
Sideloading Lift Truck (*PB*).....Jl 33
Rood, L.
Investigation of the Spherical Hydrostatic Gas Bearing for Two-Axis Gyros [70-Lub-6] (*A*) Ja 42
Roorda, J.
The Loading Frequency Relationship in Multiple Eigenvalue Problems [71-APM-13] (*A*).....S 56
Rooste, E. E. deceased.....Je 90
Ropes
An Analysis of Corrosion in Wire Ropes [70-WA/Unt-10] (*A*).....Je 46
The Cost Effectiveness of Natural and Synthetic Fiber Ropes in the Marine Environment [70-WA/UnT-9] (*A*).....Je 46
Rose, Herbert A. elected Fellow ASME..F 104
Rosenberg, R. C.
State-Space Formulation for Bond Graph Models of Multiport Systems [70-WA/Aut-2] (*A*)..F 69
Rosenberg, Richard elected ASME Region IX Vice-President 1972–1974 N 86; replaced by John A. Talbott (*ECA*).....N 83
Rosener, Arthur A.
Development of a Zero-Gravity Whole Body Shower [71-Av-2] (*A*).....O 54
Ross, Philip N. elected Fellow ASME.....Jl 77
Ross, Werner C. promoted to vice-president in charge of project coordination and construction management by Bilbyrne Corp.....O 89
Rossiter, I. J. deceased.....Ag 87
Rotation, Rotating Equipment, Rotor Technology
See also Stretch Rotation
Air Bearings for High-Speed Mirrors Rotating in a Vacuum [70-Lub-15] (*A*).....Ja 43
Analysis and Experiments on Multi-Plane Balancing of a Flexible Rotor [71-Vibr-74] (*A*)...D 52
An Analysis of Vane-in-Rotor Pump [70-WA/FE-21] (*A*).....F 74
Application of Tungsten Carbide to Oilfield Rotary Drill Bits [71-Pet-21] (*A*).....D 49
An Asymptotic Solution of a Rotating Disk [71-APM-Q] (*A*).....O 59
Avoiding Iterative Searches to Find Critical Speeds of Rotating Shafts with the Transfer Matrix Method [71-Vibr-53] (*A*).....N 52
Cavity Resonance in Fractional Horsepower Refrigerant Compressors [71-Vibr-88] (*A*)..N 54
Design of Rotating Disks with Integral Shafts [70-WA/DE-6] (*A*).....F 66
Designing Rotor Burst Protection [71-GT-70] (*A*) Jl 40
Determining Critical Speeds of a Crankshaft-Flywheel Assembly for an Outboard Motor [71-Vibr-54] (*A*).....N 52
On the Dynamic Response of Axially Coupled Turborotors [71-Vibr-108] (*A*).....D 54
The Effect of Support Flexibility and Damping on the Synchronous Response of a Single-Mass Flexible Rotor [71-Vibr-72] (*A*).....N 54
Effects of Axial Torque on Rotor Response: An Experimental Investigation [70-WA/DE-14] (*A*) F 67
The Effects of Shear Deformation and Rotary Inertia on the Lateral Frequencies of Cantilever Beams in Bending [71-Vibr-79] (*A*).....D 52
Failure Analysis of a Rotating Assembly [71-DE-17] (*A*).....Jl 46

Rotation (*Continued*)
A Finite Element Model for Distributed Parameter Turbomotor Systems [71-Vibr-56] (*A*) N 52
Flexible Rotor Balancing by the Exact Point-Speed Influence Coefficient Method [71-Vibr-91] (*A*) D 53
Flow in Rotating Straight Pipes of Circular Cross Section [70-WA/FE-13] (*A*) F 73
Graphical Display of Computer Simulated Unbalanced Rotor Response [71-Vibr-42] (*A*) N 52
Harmonic Response of Masses on an Elastic Half Space [71-Vibr-59] (*A*) N 53
Integral Method for Flow Between Corotating Disks [70-WA/FE-4] (*A*) F 62
Multiplane Balancing of Flexible Rotors—A Method of Calculating Correction Weights [71-Vibr-52] (*A*) N 52
Noise Study of Fractional Horsepower, Rotary Vane, Refrigerant Compressor [71-Vibr-89] (*A*) N 54
Nonlinear Response of Gas-Lubricated Shrouded Rayleigh-Step Thrust Pad [71-Vibr-75] (*A*) D 52
Performance of a Rotating Flat-Disk Wiped-Film Evaporator [71-HT-37] (*A*) N 57
Predictions of Momentum Transfer Between Rotating Cylinders: The Narrow Gap Problem [71-APM-30] (*A*) O 58
The Rationale of Monitoring Vibration on Rotating Machinery in Continuously Operating Process Plant [71-Vibr-96] (*A*) D 53
The Resistance to Rotation of Free and Enclosed Disks [71-APM-25] (*A*) S 57
Should a Flexible Rotor Be Balanced in N or (N + 2) Planes? [71-Vibr-55] (*A*) N 53
A Simulation Model for Flexible Rotating Equipment [71-Vibr-71] (*A*) N 54
Stability and Transient Motion of a Vertical Three-Lobe Bearing System [71-Vibr-76] (*A*) D 52
Stability of an Unsymmetrical Rotating Cantilever Shaft Carrying an Unsymmetrical Rotor [71-Vibr-58] (*A*) N 53
A Study of Contrarotating Turbines Based on Design Efficiency [70-WA/FE-17] (*A*) F 73
Subharmonic Rotor Instability Due to Elastic Asymmetry [71-Vibr-57] (*A*) N 52
Sum and Difference Frequencies in Vibration of High Speed Rotating Machinery [71-Vibr-103] (*A*) D 54
Theoretical and Experimental Optimization of a High-Speed Rotor [70-WA/Aut-11] (*A*) F 70
Transient Flexible-Rotor Dynamics Analysis
Part 1—Theory [71-Vibr-92] (*A*) D 53
Traveling Waves in Rotating Cylindrical Shells [71-DE-A] (*A*) J1 47
Unbalance Response of an Elastic Rotor in Damped Flexible Bearings at Supercritical Speeds [70-WA/Pwr-3] (*A*) My 55
On the Use of Balancing Machines for Flexible Rotors [71-Vibr-73] (*A*) N 54
Using Systems Analysis to Improve Protective Design [71-Pet-22] (*A*) D 49
Using the Orbit to Balance Rotating Equipment [based on 70-Pet-30] F 28
Visual Observations and Torque Measurements in the Taylor Vortex Regime Between Eccentric Rotating Cylinders [70-Lub-13] (*A*) Ja 43

Roth, B.
On the Smallest Circle Determined by Three Positions of a Rigid Body [70-Mech-11] (*A*) Ja 47

Rothe, F. S.
Ten Years' Progress in Management, 1960–1970
IV: Management Education
Management Education—Industrial, 1960–1969 [70-WA/Mgt-7] (*A*) Mr 58

Rothermel, U. Amel elected Fellow ASME F 103

Rothfus, Robert R. appointed head of Department of Chemical Engineering, Carnegie Institute of Technology My 88

Rothrock, E. W.
Multilayer Vessels for High Pressures [based on 70-Pet-32] Mr 34

RoToTec Process
"Cold" Coating Process (*BTR*) Ap 44

Roughness
Effect of Artificial Surface Roughness on Heat Transfer and Pressure Drop for a High Prandtl Number Fluid in Laminar Flow [71-HT-36] (*A*) O 63
The Hydrodynamic Lubrication of Rough Bearing Surfaces of Finite Width [70-Lub-7] (*A*) Ja 42

Rounds, F. G.
Lubricant and Ball Steel Effects on Fatigue Life [70-Lub-16] (*A*) Ja 44

Rouse, Hunter
Growth ≠ Progress? Ap 20
Growth ≠ Progress? (*C*) (*AC*) S 58, O 64

Rowe, Arthur W.
Cryogenic Blood Preservation [based on 70-WA/HT-20] My 37
Preservation of Blood at Cryogenic Temperatures [70-WA/HT-20] (*A*) Ap 60

Rowen, W. I.
A Comparison of Simulated Gas Turbine Ship Handling Characteristics with Several Different Transmission Systems [71-GT-65] (*A*) J1 40

Rowley, William K. deceased Mr 88; (*Er*) My 91

Roy, B. K.
Upper Bounds to Limit Pressures of Branch-Pipe Lateral Connections
Part I: Bounds for Branch/Pipe Diameter Ratios Smaller than 0.7 [71-PVP-43] (*A*) S 48

Roys, Francis W. receives ASME 50-year pin Ag 85

Rozvany, G. I. N.
Dual Formulation of Variational Problems in Optimal Design [71-Vibr-110] (*A*) D 54

Rubayi, N. A.
Effect of Manifold Tuning on Performance of Engines [71-Vibr-104] (*A*) D 54

Rubber
Rubber, Plastics Industry [1971 outlook] (*NR*) F 84

Rubenkoenig, H. deceased N 93

Rubin, Edward S.
Emissions (*C*) D 57

Rubis, C. J.
Transient Response of a 25,000-hp Marine Gas-Turbine Engine [71-GT-61] (*A*) J1 39

Ruck, George deceased Mr 88

Rudinger, G.
Addition of Heated Solid Particles to a Gas Flowing in a Pipe [71-FE-22] (*A*) Ag 55

Rueth, W. R.
Light Gas Gun for Powder Compaction [based on 70-WA/PT-4] Je 18
Laboratory-Size Light Gas Gun—Design and Operation [70-WA/PT-4] (*A*) Mr 65

Rugg, Gordon S. becomes director of the engineering division, in the engineering, construction, maintenance, and utilities organization at Kodak Park Div., Eastman Kodak Co. Ap 85

Ruhl, R. L.
A Finite Element Model for Distributed Parameter Turbomotor Systems [71-Vibr-56] (*A*) N 52
Graphical Display of Computer Simulated Unbalanced Rotor Response [71-Vibr-42] (*A*) N 52

Rulfs, Carl H. elected Fellow ASME F 104

Rupture
Burst-Strength Analysis of Finite-Length, Specially Orthotropic Cylinders with Different End Closures [71-PVP-21] (*A*) Ag 52
Conditions for the Rupture of a Lubricating Film
Part II: New Boundary Conditions for Reynolds Equation [70-Lub-3] (*A*) Ja 42
Creep and Creep-Rupture Properties of Types 304N and 316N Stainless Steels [71-Pet-34] (*A*) D 50
The Effect of Composite on the Stress-Rupture Properties of Fully Austenitic Stainless Steel Welds [71-PVP-64] (*A*) S 50
Response of a Piped LMFBR to Primary System Pipe Rupture [71-NE-1] (*A*) J1 42
Velocities of Fragments from Bursting Gas Reservoirs [71-PVP-14] (*A*) Ag 51

Rusinoff, S. E. deceased N 93

Russell, Archibald Edward to receive 1971 Daniel Guggenheim Award S 94

Russell, R. J. retires as general manager of Koppers Co., Inc., Metal Products Div., Hardinge Operation, York, Pa. Ap 85

Rutieon
See Images, Imaging

Rybicki, E. F.
The Stress Analysis of Plates with Single and Clustered Nozzles by the Boundary Point Least Squares Method [71-PVP-20] (*A*) Ag 52

S

Sacramento Municipal Utility District
See SMUD

Saczalski, K. J.
Coupled Response of Spatial Vibratory Structures Mounted to Isotropic Plate Elements [71-Vibr-3] (*A*) N 48

Sadler, J. P.
Kineto-Elastodynamic Harmonic Analysis of Four-Bar Path Generating Mechanisms [70-Mech-61] (*A*) Ja 52

Sadowski, E. P.
Elevated Temperature Properties of Maraging Steel Plates and Welds [71-Met-E] (*A*) Ag 48

Safety
See also Fireproofing Materials; Life Raft; Public Interest; Public Safety
Anti-Fog Coating (*NTB*) O 44
Certification for Material Safety of Hyperbaric Facilities [71-PVP-65] (*A*) S 50
Combustion Safety in Industrial Boilers [71-IPwr-3] (*A*) S 53
Contract for Improved Crashworthiness (*NB*) N 69
Crash Tests (*NB*) N 69
Electronic Super Guard (*BTR*) N 40
Endless Road (*PB*) Je 36, 37
Fast Reactor Siting and Safety (AEC Regulatory Procedures and Views) [71-NE-4] (*A*) J1 43
Hydraulic Brake Safety Valve (*NTB*) Ja 35
Legal and Moral Responsibilities of Engineers Toward Public Safety [70-WA/Av-2] (*A*) F 68
National Highway Traffic Safety Administration Auto Safety Testing (*NB*) Ag 67
Natural Gas Fuel Tanks for Automobiles: Safety Problems [71-PVP-62] (*A*) S 50
Pesticide Reports (*NB*) N 69
Procurement of Safe Viewports for Hyperbaric Chambers [71-PVP-1] (*A*) Ag 49
Safety Certification of a Man-Rated Hyperbaric Facility [71-PVP-63] (*A*) S 50
Safety Considerations in the Selections of Switches and Relays [71-DE-33] (*A*) J1 47
Safety Criteria and Design for an FBR Demonstration Plant [71-NE-17] (*A*) J1 44
Seat Belts and Safety (*BTR*) D 37
Tire Safety Standards (*NB*) O 73
To Reduce Midair Collisions (*NB*) N 68
Turbine-Generator Operation (*NB*) N 68
TV First (*PB*) D 42
X-Ray Tire Testers (*BTR*) N 42

Safety, Product
Pollution Control, Product Safety, Small Computers, "Intelligent" Machines, Superplastic Alloys Featured at ASME Design Engineering Conference, 1971 Je 70
Ten Years' Progress in Management, 1960–1970
II: Management's Social Responsibilities
The Engineer's Responsibility for Product Safety [70-WA/Mgt-3] (*A*) Mr 47

Safwat, Hemmat H.
Measurement of Transient Flow Velocities for Water Hammer Applications [71-FE-29] (*A*) S 52

Sakai, T.
Investigation Concerning the Fluid Flow in the Mixed-Flow Diffuser [71-GT-40] (*A*) J1 38
A Study on the Flow Pattern Within the Centrifugal and Mixed-Flow Impellers [71-GT-41] (*A*) J1 38

Salaries
Certification Improves Technicians' Salaries (*EN*) Ja 64
Engineer Income Level (*NB*) Ap 72
Salaries of Engineers in Education (*EN*) Ap 73
Starting Salaries for Tech Grads Increased (*EN*) Mr 74
Ten Years' Progress in Management, 1960–1970
I: Management, An Appraisal and Overview
Beyond Salary—Executive Compensation Past and Present [70-WA/Mgt-1] (*A*) Mr 56

Salerno, V. L. deceased O 91

Salinas, D.
Initial Yield Surface of a Unidirectionally Reinforced Composite [71-APMW-19] (*A*) N 56

Salmon, R.
Some Effects of Injecting Cutting Fluids Directly into the Chip-Tool Interface [70-WA/Prod-2] (*A*) Mr 59

Salt Water Systems
Reliability Design in Salt Water Disposal and Inspection Facilities [71-Pet-8] (*A*) D 48

Salter, T. deceased D 83

Salvaging
Salvaging Surface-Damaged Castings (*NTB*) Ja 35

Sammarco, G. J.
The Biomechanics of Torsional Fractures: The Effect of Loading on Ultimate Properties [70-WA/BHF-9] (*A*) Ap 64

Samolewicz, J. J.
Experimental and Analytical Study of a Small Free-Piston Gasifier [71-DGP-5] (*A*) Ag 48

Samonski, Frank H., Jr.
System Features of a Space Station Prototype Environmental/Thermal Control and Life Support System [71-Av-22] (*A*) O 56

Sams, James H. deceased Ap 88

Samson, A.
An Analysis of Forces at the Pivot Bearing of a Compound Pendulum [71-APM-H] (*A*) O 60

San Francisco (BART)
$40 Million for S. F. Rapid Transit (*NB*) Je 59

San Onofre Nuclear Generating Station
In-Service Inspection of San Onofre Nuclear Generating Station—
Unit 1 [71-PVP-51] (*A*) S 48
Units 1, 2, and 3 [70-WA/NE-5] (*A*) My 55

Sanborn, D. M.
Fluid Rheological Effects in Sliding Elastohydrodynamic Point Contacts With Transient Loading
1—Film Thickness [70-Lub-21] (*A*).....Ja 45
2—Traction [70-Lub-22] (*A*).....Ja 45
Sanders, J. Lyell, Jr.
Concentrated Forces on Shallow Cylindrical Shells [70-WA/APM-2] (*A*).....My 57
Cutouts in Shallow Shells [70-WA/APM-3] (*A*) My 57
Singular Solutions to the Shallow Shell Equations [70-WA/APM-1] (*A*).....My 57
Sanders, N. D.
Noise Abatement in Industry
Gas Turbine Noise Abatement
Some Results of Recent Research on Fan and Jet Noise [70-WA/GT-15] (*A*).....Ap 57
Sandford, Thomas A. named an assistant section leader for weaponization at Los Alamos Scientific Laboratory.....Jl 74
Sandor, George N.
Extension of Freudenstein's Equation to Geared Linkages [70-Mech-32] (*A*).....Ja 49
Kinematic Synthesis of a Geared Five-Bar Function Generator [70-Mech-2] (*A*).....Ja 45
Kinematic Synthesis of Watt's Mechanism [70-Mech-50] (*A*).....Ja 51
Kineto-Elastodynamic Harmonic Analysis of Four-Bar Path Generating Mechanisms [70-Mech-61] (*A*).....Ja 52
Operators for the Kinematic Synthesis of Mechanisms by Stretch-Rotation Techniques [70-Mech-79] (*A*).....Ja 54
Synthesis of a Geared N-Bar Linkage [70-Mech-24] (*A*).....Ja 48
Sandstrom, N. G. deceased.....N 93
Sandwiches
Exact Analysis of a Thick Sandwich Conical Shell by Forward Integration [71-APMW-20] (*A*) N 56
Expanded-Sphere Sandwich Structure [70-WA/UnT-7] (*A*).....Je 46
Structural Damping Using a Four Layer Sandwich [71-Vibr-20] (*A*).....N 49
Vibrations of Multicore Orthotropic Sandwich Plates [71-Vibr-48] (*A*).....N 52
Web-Stiffened Sandwich Structures [71-APM-8] (*A*).....S 55
Sanford, L. R. deceased.....N 93
Sanford, William B. named Engineer of the Year by the Alabama Society of Professional Engineers.....O 89
Sanghvi, B. J.
Frictional Characteristics of Oxide-Treated and Untreated Tungsten-Carbide Tool [70-WA/Prod-5] (*A*).....Mr 60
Sankar, T. S.
Failure Prediction Through the Theory of Stochastic Excursions of Extreme Vibration Amplitudes [71-Vibr-60] (*A*).....N 53
Sarau, R. W.
Operating Experience and Availability of Genoa 3 Unit [71-Pwr-4] (*A*).....D 51
Saravanamuttoo, H. I. H.
Experimental Investigation of Methods for Improving the Dynamic Response of a Twin-Spool Turbojet Engine [71-GT-14] (*A*).....Jl 36
Saric, W. S.
Surge Waves in Stranded Springs [71-Vibr-94] (*A*) D 53
Sarma, K. R. K.
Growth ≠ Progress? (*C*).....S 58
Sarno, D. A.
Effect of Heat Treatment of the Properties of 3½ Percent Nickel Steel [71-Pet-29] (*A*).....D 50
Welding of Cryonic 5 Steel [71-Pet-33] (*A*).....D 50
Sarofim, A. F.
Experimental and Theoretical Study of Absorption in an Anisotropically Scattering Medium [71-HT-20] (*A*).....O 62
Mathematical and Experimental Modeling of the Circulation Patterns in Glass Melts [70-WA/HT-11] (*A*).....Ap 59
Sarto, Jorma O. elected Fellow ASME.....D 82
Satellites
Normal Mode Solution for the Vibrational Motions of Long Flexible Booms on the RAE Satellite [71-DE-J] (*A*).....Jl 48
Sathikh, S. M.
Damped Isolation and Undamped Vibration Absorber Model for Vibration Control [71-Vibr-45] (*A*).....N 52
Saturation
A Continuum Theory of Fluid Saturated Porous Media [70-WA/APM-36] (*A*).....Je 47
An Experimental Investigation of the Enthalpy of Saturated Heavy-Water Liquid [71-HT-M] (*A*).....N 59
Superheat Layer Thickness Measurements in Saturated and Subcooled Nucleate Boiling [71-HT-43] (*A*).....N 58
Saunders, C. G.
180-Day Life Test of a Solid Electrolyte System for Oxygen Regeneration [71-Av-32] (*A*)...O 57
Savage, M.
Gross Motion Classifications of the RCCC Chain [70-Mech-56] (*A*).....Ja 51
A Unique Model Set of All RCCC Linkages, Including Mirror-Image Related Linkages [70-Mech-3] (*A*).....Ja 46
Savery, C. William (*reviewer*)
"Nuclear Power and Its Critics" (*BR*).....D 57
"Nuclear Power and the Public" (*BR*).....D 57
Savkar, S. D.
Nonuniform Flow in the Inlet Section of a Straight Channel [70-WA/FE-27] (*A*).....F 74
Sawley, R. J.
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Energy Transmission in Piping Systems and Its Relation to Noise Control [70-WA/Pet-3] (*A*).....Ap 54
Scanlan, R. H.
The Suspension Bridge: Its Aeroelastic Problems [71-Vibr-38] (*A*).....N 51
Scanners, Scanning
See also Laser Technology
Advanced Image Handling (*BTR*).....Jl 29
TV First (*PB*).....D 42
Ultrasonic Inspection of Brazed-Tube Joints (*NTB*).....D 39
Scattering
Experimental and Theoretical Study of Absorption in an Anisotropically Scattering Medium [71-HT-20] (*A*).....O 62
The Scattering of Shock Waves by Cylindrical Cavities in Liquids and Solids [70-WA/APM-57] (*A*).....Je 49
Scavenging
A Computer Simulation of Scavenging and Combustion in a Loop-Scavenged, Two-Cycle Natural Gas Engine [71-DGP-9] (*A*).....Ag 49
On Model Investigations Pertaining to Scavenging in Two-Stroke Diesel Engines [71-DGP-8] (*A*) Ag 49
Schade, K. W.
Turbulent Flow Between Parallel Plates with Gas Property Variation [71-FE-38] (*A*).....S 53
Schaedle, G. C.
Life-Support System Design for a 12-Man Solar-Array Space Station [71-Av-12] (*A*).....O 55
Schaefer, Adolph O. elected Fellow ASME D 82
Schaeffer, H. G.
Stress Analysis of Composite Structures [71-DE-2] (*A*).....Jl 44
Scharp, Charles B. elected Fellow ASME Ag 86
Schatzberg, Paul
Inhibition of Water-Accelerated Rolling-Contact Fatigue [70-Lub-9] (*A*).....Ja 42
Scheel, Henry V. deceased.....Ja 107
Scheel, L. F.
Technology for Centrifugal Compressors [71-Pet-24] (*A*).....D 49
Scheflow, Oliver W. appointed engineering manager at Lear Siegler's Romec Div....S 98
Scheib, L. deceased.....N 93
Scheidemantle, Herbert S. deceased...Ja 107
Scheil, Merrill A. Fellow ASME, inventor, author, and one of the country's leading metallurgists retires after 41 years with A. O. Smith Corp.....Mr 84
Scheminger, W. J.
Resistance of Some Standard Compressor Materials to Hydrogen Sulfide Stress-Corrosion Cracking [71-Pet-25] (*A*).....D 50
Schetz, J. A.
Transition and Mixing in the Shear Layer Produced by Tangential Injection in Supersonic Flow [71-FE-24] (*A*).....S 51
Schey, J. A.
Speed Effects in Forging Lubrication [70-Lub-11] (*A*).....Ja 42
Schiefer, R. B.
The Combustion of Heavy Distillate Fuels in Heavy Duty Gas Turbines [71-GT-56] (*A*) Jl 39
A Fuel for Total Energy [71-GT-55] (*A*).....Jl 39
Schiller, A. J.
The Effects of Vanadium in High Strength Low Alloy Steels [71-Pet-5] (*A*).....D 47
Schiller, F.
The Gas Turbine (*C*).....Ag 56
Schlink, Frederick J. elected Fellow ASME Ag 86
Schmidt, Alfred O. retires from Pennsylvania State University with rank of professor emeritus.....N 89
Schmidt, F. W.
Developing Flow with Combined Forced-Free Convection in an Isothermal Vertical Tube [71-HT-6] (*A*).....O 61
Schmidt, R.
Large Sideward Deflections of Two-Hinged Circular Arches [71-DE-E] (*A*).....Jl 48
Schmidt, R. N.
Variable Conductance Wall [71-HT-39] (*A*)..N 58
Schmidt, William A.
Conserving Water (*C*).....Ja 56
Schneider, R. W.
Photoelastic Study and Fatigue Tests of a Contoured, Integrally Reinforced Branch Connection [71-PVP-5] (*A*).....Ag 50
Schodl, R.
Development and Testing of Techniques for Oscillating Pressure Measurements Especially Suitable for Experimental Work in Turbomachinery [71-FE-28] (*A*).....S 52
Schoenberger, R. J.
Regional Air Quality Control—The Impact and Costs of Refuse Incineration [70-WA/Inc-1] (*A*) F 67
Schofield, P.
Analysis of Changes in the Performance Characteristics of Steam Turbines [70-WA/PTC-1] (*A*).....My 52
Scholarships
See Grants, Study
Schrader, Thomas O., Jr. elected Fellow ASME F 103; receives Fellow ASME certificate Je 78; reelected to board of directors of Zurn Industries, Inc.....O 89
Schreyer, H. L.
The Effect of Initial Imperfections on the Buckling Load of Shallow Circular Arches [71-APMW-13] (*A*).....N 56
Schroeder, J.
Upper Bounds to Limit Pressures of Branch-Pipe Lateral Connections
Part I: Bounds for Branch/Pipe Diameter Ratios Smaller than 0.7 [71-PVP-43] (*A*).....S 48
Part II: Bounds and Reliability for Branch/Pipe Diameter Ratios Larger than 0.7 [71-PVP-44] (*A*).....S 48
Schroeter, J. W.
Failure Analysis of a Rotating Assembly [71-DE-17] (*A*).....Jl 46
Schubert, Franz H.
Status of the Life Systems' Static Feed Water Electrolysis System [71-Av-25] (*A*).....O 57
Schuler, K. W.
Critical-Induced Acceleration for Shock Propagation in Polymethyl Methacrylate [71-APM-14] (*A*).....S 56
Schuller, F. T.
Stability and Transient Motion of a Vertical Three-Lobe Bearing System [71-Vibr-76] (*A*).....D 52
Schultz, A. B.
Determination of the Unloading Boundary in Longitudinal Elastic-Plastic Stress Wave Propagation [71-APM-15] (*A*).....S 56
Schultz, Andrew, Jr.
Ten Years' Progress in Management, 1960–1970
IV: Management Education
Continuing Management Education in the Universities [70-WA/Mgt-6] (*A*)....Mr 58
Schultz, C. C.
Combined Elastic-Plastic-Creep Analysis of Two-Dimensional Bodies [71-PVP-30] (*A*).....Ag 52
Schultz, R. W.
Welding of Cryonic 5 Steel [71-Pet-33] (*A*)...D 50
Schulz, W. J.
Development of Borsic-Aluminum Composite Fan Blades for Supersonic Turbofan Engines [71-GT-90] (*A*).....Jl 42
Schulze, F. W.
ASME Survey Committee Report, 1969–1970
Progress in Railway Mechanical Engineering
Part I: Locomotives [70-WA/RR-9] (*A*)..Je 41
Schumann, W.
The Separation of Membrane and Bending Shears in Shell with Two Birefringement Coatings [70-WA/APM-28] (*A*).....Je 46
Schwanhausser, Edwin J. reelected to five-year term as member of board of Stevens Institute of Technology.....Ja 105
Schweitzer, G.
Theoretical and Experimental Optimization of a High-Speed Rotor [70-WA/Aut-11] (*A*)....F 70
Schwertfeger, Anton J. elected Fellow ASME F 104; receives Fellow ASME certificate Jl 76
Scibbe, H. W.
Advanced Design Concepts for High Speed Bearings [71-DE-50] (*A*).....Ag 47
Science
Designing an Advanced Marine Corer [based on 69-WA/UnT-13]
Marine Coring (*C*).....F 77
NASA Tech Briefs
See News
Science-Oriented Computer (*BTR*).....Je 29
Scientific Agreement
U. S.–Soviet Scientific Agreement (*NB*).....Je 58

Scientists
Engineers of Distinction a New Directory (*TL*) "Engineers of Distinction including Scientists in Related Fields" ..... F 93
Scott, R. R.
Thermal Design and Evaluation of the ITOS-1 Spacecraft [71-Av-23] (*A*) ..... O 56
Scotto, Dominick P. joins Gyrosystems Inc., of Farmingdale, L. I., as chief engineer, mechanical ..... My 88
Scratching
Salvaging Surface-Damaged Castings (*NTB*) Ja 35
Screens, Screening
Performance of Air-Cooled Radiatively Heated Screen Matrices [70-WA/Sol-1] (*A*) ..... F 64
Screening Mineral Samples (*NTB*) ..... Je 30
Screw Axes
Differential Displacement Matrices and the Generation of Screw Axis Surfaces in Kinematics [70-Mech-1] (*A*) ..... Ja 45
Screw Coordinates
Dynamic Analysis of Mechanisms Using Screw Coordinates [70-Mech-41] (*A*) ..... Ja 50
Kinematic Analysis of Spatial Mechanisms by Means of Screw Coordinates
Part 1—Screw Coordinates [70-Mech-13] (*A*) Ja 47
Part 2—Analysis of Spatial Mechanisms [70-Mech-14] (*A*) ..... Ja 47
Screw Matrices
Static Force and Torque Analysis Using 3 X 3 Screw Matrix, and Transmission Criteria for Space Mechanisms [70-Mech-18] (*A*) ..... Ja 47
Screws
See also Orlo Screw
Minimum Error Synthesis of Space Mechanisms for the Generation of Constrained and Unconstrained Screws [70-Mech-27] (*A*) ..... Ja 48
A New Method of Screw Strength Calculation [71-DE-G] (*A*) ..... Jl 48
A Study of Plunge (or Form) Machining of Low-Carbon Resulfurized Steel on a Multispindle Automatic Screw Machine
Part 1: Influence of Speed, Feed, and Ingot Variation on Diameter Increase and Surface Finish in Prolonged Machining [70-WA/Prod-18] (*A*) ..... Mr 61
Part 2: Influence of Speed, Feed, and Duration of Cutting on Worn Tool Geometry [70-WA/Prod-19] (*A*) ..... Mr 62
Scrubbers
Pollution Fighters (*PB*) ..... S 44
Scrutton, R. F.
The Free Plastic Compression of Pure Metals [70-WA/APM-10] (*A*) ..... My 58
Plastic Flow at the Chip-Tool Interface During Hot Machining [70-WA/Prod-1] (*A*) ..... Mr 59
The Plastic Flow of Surface Metal Layers [71-APM-W] (*A*) ..... O 60
Seubasub 300
Plastic Sub (*BTR*) ..... D 36
Sculpture
The Art of the Matter (*BTR*) ..... Ja 37
Seals, Sealing
New Design Concepts and Materials for Mechanical Shaft Seals [71-Pet-35] (*A*) ..... D 51
A Seal User Looks at Improving Dynamic Seal Applications [71-DE-9] (*A*) ..... Jl 45
Self-Sealing Closure (*NTB*) ..... O 44
Trouble-Free Sealing (*BTR*) ..... N 43
Victory Seal (*BTR*) ..... Ja 33
Searching
A Directed Random Search [70-WA/Aut-7] (*A*) F 69
Seat Belts
Seat Belts and Safety (*BTR*) ..... D 37
Seawater
Power in the Year 2001
Part 2—Thermal Sea Power ..... O 21
Part 4—Rock Burning ..... D 27
Sea Burning ..... D 30
Seban, R. A.
Heat Transfer to Evaporating Liquid Films [71-HT-H] (*A*) ..... N 59
Spectral Radiation from Alumina Powder on a Metallic Substrate [70-WA/HT-14] (*A*) .. Ap 59
Secor, Ambrose T. elected Fellow ASME Jl 77
Seebold, J. G.
Combustion Noise and Its Control in Process Plant Furnaces [71-Pet-6] (*A*) ..... D 47
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Refinery Flair System Injectors Redesigned for Noise Control [70-WA/Pet-4] (*A*) Ap 55
Seeman, J. S.
Overview of a 90-Day Manned Test in a Space Station Simulator [71-Av-38] (*A*) ..... O 58
Seevers, J. A.
Dynamic Stability Analysis of Linkages with Elastic Members via Analog Simulation [70-Mech-48] (*A*) ..... Ja 51
SEFOR
See Southwest Experimental Fast Oxide Reactor
Selreg, A.
Design of Rotating Disks with Integral Shafts [70-WA/DE-6] (*A*) ..... F 66
A Mathematical Programming Method for Design of Elastic Bodies in Contact [70-WA/APM-52] (*A*) ..... Je 49
Optimal Trajectories and Controls for Systems of Coupled Rigid Bodies [71-Vibr-82] (*A*) .... D 52
A Survey of Optimization of Mechanical Design [71-Vibr-62] (*A*) ..... N 53
Seitz, D. H.
Exact Analysis of a Thick Sandwich Conical Shell by Forward Integration [71-APMW-20] (*A*) N 56
Selcuk, M. Kudrek
The Effect of Solar Radiation on the Energy Balance of Controlled-Environment Greenhouse [70-WA/Sol-3] (*A*) ..... F 64
Selzer, S. D.
Water Quality Management—Delaware River Estuary [70-WA/PID-6] (*A*) ..... Mr 63
Seminars
See Meetings
Sence, Leonard H. appointed manager of marketing, Allis-Chalmers Industrial Pump Division ..... Ap 85
Sengstaken, Donald J. appointed manager of business development, Burns & Roe Construction Corp. ..... Ap 86
Senoo, Yasutoshi
An Analysis of Flow Through a Mixed Flow Impeller [71-GT-2] (*A*) ..... Ag 44
A Blade Theory of an Impeller with an Arbitrary Surface of Revolution [71-GT-17] (*A*) ..... Jl 36
Sensitivity
Some Further Contributions to the Dynamic Sensitivity of the Parameter Perturbation Process [70-WA/Aut-5] (*A*) ..... F 69
Sensors
Bubble Level as Pitch and Roll Sensor (*NTB*) O 44
Flueric Carbon Dioxide Concentration Sensor [70-WA/Flcs-10] (*A*) ..... Je 43
A Numerical Study of the Flow in the Vortex Angular-Rate Sensor [70-WA/FE-5] (*A*) .. F 72
Sensor for the Control of Vehicular Gas Turbine Combustors [71-GT-63] (*A*) ..... Jl 39
Separation
Incompressible Laminar Boundary Layers on a Parabola at Angle of Attack: A Study of the Separation Point [71-APM-31] (*A*) ..... O 58
Sephton, H. H.
Interface Enhancement for Vertical Tube Evaporators: A Novel Way of Substantially Augmenting Heat and Mass Transfer [71-HT-38] (*A*) .. N 57
Seppa, William O. deceased ..... My 91
Serkiz, A. W.
Development of Cryogenic Heat Pipes [70-WA/Ener-1] (*A*) ..... Ap 60
Serpan, C. Z., Jr.
Analysis of Radiation-Induced Embrittlement Gradients on Fracture Characteristics of Thick-Walled Pressure Vessel Steels [71-PVP-7] (*A*) Ag 50
A Reassessment of Fracture-Safe Operating Criteria for Reactor Vessel Steels Based on Charpy-V Performance [70-WA/Met-1] (*A*) My 52
Servomechanisms
Slow-Speed Drives for Miniature Devices (*NTB*) Ja 34
Seth, W. B.
Nuclear Code Class, Safety Class and Quality Administration: How They Tie Together [71-PVP-56] (*A*) ..... S 48
Severs, Elmer B. deceased ..... F 106
Sevier, H. A. deceased ..... N 93
Sewage
Advanced Waste Treatment Process Manuals (*TL*) Ja 67
More the Merrier (*PB*) ..... F 60
Shabaik, A. H.
An Approach to Die Design in Extrusions [70-WA/Prod-16] (*A*) ..... Mr 61
Prediction of the Geometry Changes of the Free Boundary During Upsetting by the Slip-Line Theory [70-WA/Prod-17] (*A*) ..... Mr 61
Shabbits, W. O.
Fracture Toughness of ASTM A533 Grade B Class 1 Heavy Section Submerged Arc Weldments [71-Met-B] (*A*) ..... Ag 48
Shadowen, J. H.
A Fluidic Fuel Control Valve for Turbine Engines [71-GT-44] (*A*) ..... Ag 45
Shaffer, B. W.
Elastic Analysis of Condylar Structures [70-WA/BHF-1] (*A*) ..... Ap 62
Shaffer, Bernard W. elected Fellow ASME Mr 86
Stress Resultants and Out-of-Plane Deformations in Stiff Rings Attached to Elastic Cylinders and Subject to Concentrated Loads [70-WA/PVP-1] (*A*) ..... F 76
Shafts
Avoiding Iterative Searches to Find Critical Speeds of Rotating Shafts with the Transfer Matrix Method [71-Vibr-53] (*A*) ..... N 52
Design of Rotating Disks with Integral Shafts [70-WA/DE-6] (*A*) ..... F 66
Dynamic Behavior and Control of Single-Shaft Closed-Cycle Gas Turbines [71-GT-16] (*A*) Ag 45
New Design Concepts and Materials for Mechanical Shaft Seals [71-Pet-35] (*A*) ..... D 51
Stability of an Unsymmetrical Rotating Cantilever Shaft Carrying an Unsymmetrical Rotor [71-Vibr-58] (*A*) ..... N 58
Shah, P. H.
Technology vs. Profit (*C*) ..... Jl 52
Shah, R. K.
Influence of Brazing on Very Compact Heat-Exchanger Surfaces [71-HT-29] (*A*) ..... O 63
Shah, V. L.
Theory of the Oscillating Viscometer for Slip Flow [71-APM-K] (*A*) ..... O 60
Shahan, Daniel H. elected executive vice-president of Albert Kahn Associates ..... Ag 85
Shahinian, P.
Fatigue Crack Growth in Type 316 Stainless Steel at High Temperature [71-PVP-25] (*A*) .... Ag 52
Shakedown
On the Relationship Between Plastic Shakedown and the Repeated Loading of Creep Structures [71-APM-C] (*A*) ..... O 59
Shakedown in Elastic-Plastic Systems Under Dynamic Loadings [71-APMW-27] (*A*) .... N 56
Shakedown of Pressure Vessels with Ellipsoidal Heads [71-PVP-34] (*A*) ..... Ag 53
Shakers, Shaking
Determination of Force-Balanced Four-Bar Linkages with Optimum Shaking Moment Characteristics [70-Mech-8] (*A*) ..... Ja 46
Evaluation and Development of Engine Components and Accessories with Electrodynamic Shakers [71-DGP-4] (*A*) ..... Ag 49
Reduction of Shaking Forces in a Slider Crank Mechanism [70-Mech-73] (*A*) ..... Ja 53
Theory of Shaking Moment Optimization of Force-Balanced Four-Bar Linkages [70-Mech-12] (*A*) ..... Ja 47
Shallowness
Concentrated Forces on Shallow Cylindrical Shells [70-WA/APM-2] (*A*) ..... My 57
Cutouts in Shallow Shells [70-WA/APM-3] (*A*) My 57
Singular Solutions to the Shallow Shell Equations [70-WA/APM-1] (*A*) ..... My 57
Shanebrook, J. R.
A Family of Hodograph Models for the Crossflow Velocity Component of Three-Dimensional Turbulent Boundary Layers [71-FE-1] (*A*) Ag 54
Shankar, P. N.
The Effect of Droplet Solidification Upon Two-Phase Nozzle Flow [71-FE-11] (*A*) ..... Ag 54
Shankhla, V. S.
The Free Plastic Compression of Pure Metals [70-WA/APM-10] (*A*) ..... My 58
Shapes
A Prediction of Water-Entry Cavity Shape [70-WA/FE-8] (*A*) ..... F 72
Use of Computers to Aid Corrective Forming of Complex Shapes [71-Prod-10] (*A*) ..... Jl 49
Shappert, L. B.
LMFBR Fuel Shipping—Containment and Heat Transport [71-NE-6] (*A*) ..... Jl 42
Sharma, C. S.
Some Effects of Injecting Cutting Fluids Directly into the Chip-Tool Interface [70-WA/Prod-2] (*A*) ..... Mr 59
Sharpe, Henry D., Jr. elected president and a director of National Machine Tool Builders Association Ja 104; elected director of NMTBA show ..... My 88
Shaw, Milton C. to give Robert Henry Thurston Lecture at 1971 Winter Annual Meeting S 89
Grinding Wheel Elasticity [70-WA/Prod-21] (*A*) Mr 62
Wheels for Higher-Speed Grinding [based on 70-WA/Prod-27] ..... Ag 19
High Speed Grinding [70-WA/Prod-27] (*A*) Mr 62
Shaw, R. P.
The Response of Narrow-Mouthed Harbors in a Straight Coastline to Periodic Incident Waves [70-WA/APM-46] (*A*) ..... Je 48
Wave-Front Stress Relaxation in a One-Dimensional Nonlinear Inelastic Material with Temperature and Position Dependent Properties [70-WA/APM-20] (*A*) ..... My 58
Shaw, W. A.
Stress Distribution of a Cylindrical Shell Non-radially Attached to a Spherical Pressure Vessel [71-PVP-42] (*A*) ..... S 48

Shawki, G. S. A.
Computer-Aided Study of Journal Bearing Performance Under Cyclic Loads:
Part I—Theory [71-Vibr-86] (*A*).....N 54
Part II—Applications [71-Vibr-87] (*A*).....N 54
Shea, D. W.
Identifying the Engineer (*C*).....Mr 66
Shea, Joseph Francis elected member of National Academy of Engineering.....Je 77
Shear
On the Behavior of Uniform Shear Flow in Diffusers and Its Effects on Diffuser Performance [71-GT-5] (*A*).....Ag 44
On the Correlation of Analytical and Experimental Free Shear Layer Similarity Profiles by Spread Rate Parameters [70-WA/FE-12] (*A*).....F 72
The Effects of Shear Deformation and Rotary Inertia on the Lateral Frequencies of Cantilever Beams in Bending [71-Vibr-79] (*A*).....D 52
Elastic-Plastic Plane Waves with Combined Compressive and Two Shear Stresses in a Half Space [71-APM-10] (*A*).....S 56
An Examination of Eddy Viscosity Models for Turbulent Free Shear Flows [71-FE-17] (*A*).....Ag 55
The Separation of Membrane and Bending Shears in Shell with Two Birefringement Coatings [70-WA/APM-28] (*A*).....Je 46
Shear Fatigue Crack Propagation and Shear Fracture in a Ductile Steel HY-130 [71-PVP-54] (*A*).....S 50
Shear Front-Lamella Structure in Large Strain Plastic Deformation Processes [71-Prod-1] (*A*).....Jl 48
Shear Strength and Friction of Polymers Under High Pressure [70-WA/PT-1] (*A*).....Mr 65
Shear Strength of Beryllium, Uranium, and Tungsten as a Function of Strain, Strain Rate, and Pressure [70-WA/PT-2] (*A*).....Mr 65
The Torsional Shear Strength of Pyrophyllite Under Increasing Confining Stress to Approximately 70 Kilobars [70-WA/PT-3] (*A*).....Mr 65
Transition and Mixing in the Shear Layer Produced by Tangential Injection in Supersonic Flow [71-FE-24] (*A*).....S 51
Shearer, Jesse L. elected Fellow ASME.....D 82
Shearer, William A., Jr. elected ASME Region III Vice-President 1972–1974.....N 85
Sheehan, Jack J. joins Commonwealth Associates Inc. (CAI) as utility regional manager of business development.....Je 77
Sheldon, R. C.
Optimization of the Gas Turbine Exhaust Heat Recovery System [71-GT-79] (*A*).....Jl 41
Shells
Analytical Investigations of Compact Reinforcement for Radial Nozzles in Spherical Shells [71-PVP-26] (*A*).....Ag 52
Application of Ritz's Method to Thin Elastic Shell Analysis [71-APM-32] (*A*).....O 59
Axial Vibration Transmission Characteristics of Shells of Revolution [71-Vibr-7] (*A*).....N 48
Axisymmetric Elasticity Solutions of Spherical Shell Segments [70-WA/APM-27] (*A*).....Je 36
Axisymmetric Postbuckling and Nonsymmetric Buckling of a Spherical Shell Compressed Between Rigid Plates [71-APMW-7] (*A*).....N 55
Behavior of a Steep Prestressed Arch Made from a Buckled Strut [70-WA/APM-15] (*A*).....My 58
Bending of Cylindrical Shells by Initial Parameter Method [70-WA/PVP-2] (*A*).....F 75
Buckling and Postbuckling Behavior of Clamped Shallow Spherical Shells Under Axisymmetric Ring Loads [71-APM-9] (*A*).....S 56
Buckling of Vessels Composed of Combinations of Cylindrical and Spherical Shells [70-WA/APM-19] (*A*).....My 58
Concentrated Forces on Shallow Cylindrical Shells [70-WA/APM-2] (*A*).....My 57
Creep Buckling of Thin-Walled Circular Cylindrical Shells Subject to Radial Pressure and Thermal Gradients [70-WA/APM-8] (*A*).....My 57
Cutouts in Shallow Shells [70-WA/APM-3] (*A*).....My 57
Dynamic Response of Cylindrical Shells with Initial Stress and Subjected to General Three-Dimensional Surface Loads [71-APM-12] (*A*).....S 56
Dynamics of a Submerged Ring-Stiffened Spherical Shell [70-WA/APM-42] (*A*).....Je 47
Effect of Fillets on Stress Concentrations in Cylindrical Shells with Step Changes in Outside Diameter [71-PVP-27] (*A*).....Ag 52
The Effect of Initial Imperfections on the Buckling Load of Shallow Circular Arches [71-APMW-13] (*A*).....N 56
The Effect of Pulse Shape on the Dynamic Plastic Deformation of Reinforced Circular Cylindrical Shells [70-PVP-31] (*A*).....Ag 53
Exact Analysis of a Thick Sandwich Conical Shell by Forward Integration [71-APMW-20] (*A*) N 56
Experimental and Finite Element Stress Analysis of a Thin-Shelled Cylinder-to-Cylinder Model [71-PVP-36] (*A*).....Ag 53
Experimental Stress Analysis of the Attachment Region of Hemispherical Shells with Single Attached Nozzles [71-PVP-41] (*A*).....S 48
Experiments on the Plastic Limit Behavior of Shell-Nozzle Junctures Subjected to Nonsymmetric Loading [71-PVP-45] (*A*).....Ag 53
The Free Vibrations of a Spinning Centrally Clamped Shallow Spherical Shell [71-APM-G] (*A*).....O 60
An Improved Finite Difference Method Applied to Thin Shells [71-PVP-24] (*A*).....Ag 52
The Influence of Residual Stresses on the Collapse Pressure of Cold Pressed Spherical Shells [70-WA/UnT-1] (*A*).....Je 45
An Isothermal Analogy for Thermal Stress in Shells [71-PVP-18] (*A*).....Ag 51
Laminated Transversely Isotropic Cylindrical Shells [70-WA/APM-53] (*A*).....Je 48
Large Deflections of a Linearly Viscoelastic Shallow Spherical Shell [71-APMW-28] (*A*).....N 57
Limit Analysis for Combined Edge and Pressure Loading on a Cylindrical Shell [71-PVP-22] (*A*).....Ag 52
Lower Bound to Limit Pressure of Nozzle-to-Cylindrical Shell Attachment [71-PVP-38] (*A*).....Ag 53
Pure Bending, Stretching, and Twisting of Anisotropic Cylindrical Shells [71-APMW-4] (*A*) N 55
Semimembrane Analysis of Cylindrical Shells Subjected to Wind Loading [70-WA/APM-7] (*A*).....My 57
The Separation of Membrane and Bending Shears in Shell with Two Birefringement Coatings [70-WA/APM-28] (*A*).....Je 46
Singular Solutions to the Shallow Shell Equations [70-WA/APM-1] (*A*).....My 57
Stress Analysis of Thin Elasto-Plastic Shells [70-WA/PVP-3] (*A*).....F 76
Stress Concentration in a Cylindrical Shell Containing a Circular Hole [71-PVP-9] (*A*).....Ag 50
Stress Distribution of a Cylindrical Shell Nonradially Attached to a Spherical Pressure Vessel [71-PVP-42] (*A*).....S 48
Stresses in a Pressurized Ribbed Cylindrical Shell with a Reinforced Circular Hole Interrupting a Rib [71-PVP-8] (*A*).....Ag 51
Transient Interaction of Spherical Acoustic Waves and a Spherical Elastic Shell [70-WA/APM-29] (*A*).....Je 46
Traveling Waves in Rotating Cylindrical Shells [71-DE-A] (*A*).....Jl 47
Shelton, R.
Fabrication of NEMO Type Spherical Acrylic Capsules for Underwater Vehicles [70-WA/UnT-4] (*A*).....Je 45
Shen, C. N.
Gas-Turbine Loading Schedule for Maximum Life of the Hot Gas Path Components [70-WA/GT-2] (*A*).....My 56
Thermal Control Optimization for Cylindrical Spacecraft [70-WA/Aut-13] (*A*).....F 70
Shen, F. A.
Transient Flexible-Rotor Dynamics Analysis Part 1—Theory [71-Vibr-92] (*A*).....D 53
Shepard, J. M., Jr. elected to CEMA board of directors.....F 101
Sherlock, J. J.
Taking the Systems Approach to Lubricating Machines [71-DE-49] (*A*).....Ag 47
Sherman, Roger J. elected Fellow ASME Jl 77; receives Fellow ASME certificate.....D 81
Sherwood, Robert S. elected a director of Gleason Works (OTC), Rochester, N. Y. Ag 85
Sheth, P. N.
A Generalized Symbolic Notation for Mechanisms [70-Mech-19] (*A*).....Ja 47
IMP (Integrated Mechanisms Program), A Computer-Aided Design Analysis System for Mechanisms and Linkage [71-Vibr-80] (*A*).....D 52
Shieh, R. C.
Dynamic Instability of a Cantilever Column Subjected to a Follower Force Including Thermomechanical Coupling Effect [71-APM-L] (*A*) O 60
Shields, Shielding
Applied Industrial Shielding [71-PVP-55] (*A*) S 48
The Dynamic Response of Blast Shields and Barricades to Impulsive Loadings [71-PVP-48] (*A*).....S 48
A Mechanical Engineer Looks at EMI/RFI Shielding [70-WA/DE-13] (*A*).....F 67
Shih, C. C.
Unsteady Flow About a Solid Cylinder Falling Through a Viscous Fluid Contained in a Vertical Tube [70-WA/FE-9] (*A*).....F 72
Shima, A.
The Natural Frequencies of Two Spherical Bubbles Oscillating in Water [70-WA/FE-7] (*A*).....F 72
Shinozuka, M.
On the First Excursion Probability in Stationary Narrow-Band Random Vibration [71-APM-19] (*A*).....S 56
Shipping
See also Cargo Handling
Curtis Bay's New Ship-Barge Loader [70-WA/MH-4] (*A*).....My 54
Large-Diameter Submarine Pipelines for Tanker Terminals [71-UnT-1] (*A*).....D 46
New Cargo Era Unfolding (*BTR*).....Ja 32
Shippingport, Pa.
Westinghouse to Supply Nuclear Equipment (*NB*) D 67
Ships
See Vehicles, Marine
Shiralkar, B. S.
Mass Flux and Enthalpy Distribution in a Rod Bundle for Single- and Two-Phase Flow Conditions [70-WA/HT-8] (*A*).....Ap 59
Transient Flow Measurements with Sharp-Edged Orifices [71-FE-30] (*A*).....S 52
Shivers, R. W.
Integrated Waste Management-Water System Using Radioisotopes for Thermal Energy [71-Av-4] (*A*).....O 55
Shock
Application of Gradient Search Procedures for the Identification of Unknown System Parameters from System Response Observations [71-Vibr-50] (*A*).....N 52
Automobile Bumper Testing with the Liberty Mutual Crash Simulator [71-Vibr-107] (*A*) D 54
The Autoparametric Vibration Absorber [71-Vibr-49] (*A*).....N 52
Critical-Induced Acceleration for Shock Propagation in Polymethyl Methacrylate [71-APM-14] (*A*).....S 56
Damped Isolation and Undamped Vibration Absorber Model for Vibration Control [71-Vibr-45] (*A*).....N 52
Dynamic Shock Phenomena in Rolling Mills [71-Vibr-95] (*A*).....D 53
On Elastomer Mount Design When Machine and Foundation Are Multi-Resonant Structures [71-Vibr-51] (*A*).....N 52
Effect of Normal Shock on Turbulent Boundary-Layer Parameters [71-FE-16] (*A*).....Ag 55
Optimum Damping and Stiffness in a Nonlinear Four-Degree-of-Freedom System Subject to Shock Load [70-WA/APM-18] (*A*).....My 58
Optimum Design of a Linear Multi-Degree-of-Freedom Shock Isolation System [71-Vibr-81] (*A*).....D 53
Relationship Among Frequency, Amplitude, Damping and Human Awareness for Floor Vibration Due to Impact [71-Vibr-44] (*A*) N 51
The Scattering of Shock Waves by Cylindrical Cavities in Liquids and Solids [70-WA/APM-57] (*A*).....Je 49
Shock Wave Behavior in Transonic Compressor Noise Generation [71-GT-7] (*A*).....Ag 44
A Solution of Shock-Induced Boundary-Layer Interaction Problems by an Integral Method [71-APM-21] (*A*).....S 56
Transient Response of a Vibration Isolation System [71-Vibr-33] (*A*).....N 50
Use of Optimization Techniques in Identifying a Shock Absorber: An Elementary Experience in Design Education [71-Vibr-69] (*A*).....N 53
Shock Absorbers
Flexible for Metal Bellows (*NTB*).....Ag 36
Shoemaker, A. K.
Notch-Ductility Transition of Structural Steels of Various Yield Strengths [71-PVP-19] (*A*) Ag 52
Shook, R. E.
Waste Management for the 90-Day Space Station Simulator Test [71-Av-7] (*A*).....O 55
Shoults, A. C.
Design and Operating Experiences with Gas Turbine Combined Cycle Units [71-GT-22] (*A*) Ag 45
Shoup, T. E.
On the Use of the Undulating Elastica for the Analysis of Flexible Link Mechanisms [70-Mech-33] (*A*).....Ja 49
Shrouds
Circular Cylinder Enclosed in Various Shrouds [71-Vibr-28] (*A*).....N 50
Nonlinear Response of Gas-Lubricated Shrouded Rayleigh-Step Thrust Pad [71-Vibr-75] (*A*) D 52
Shulman, S.
Cryo-Immunology: The Antigenic Properties of the Male Rabbit Urogenital System as Studied by Selective Freezing of Its Components [70-WA/HT-19] (*A*).....Ap 60
Cryo-Immunology: Surgical Approach and Thermal Regimen for Freezing the Elements of the Male Rabbit Urogenital System [70-WA/HT-17] (*A*).....Ap 59
Shuman, Everett C. granted Walter C. Voss Award for 1971 by ASTM.....Ag 85
Shuttle, Space
See Vehicles, Space

Shuttles, Shuttling
An Approximate Solution to the Shuttle Heat-Transfer Losses in a Reciprocating Machine [70-WA/Ener-3] (*A*) ..... Ap 60
Horizontal Elevator (*BTR*) ..... S 43
Sidebottom, O.
An Experimental Evaluation of Plasticity Theories for Anisotropic Metals [70-WA/APM-17] (*A*) My 58
Siegel, Robert corecipient at 1970 WAM of Heat Transfer Division Memorial Award Ja 71
Siemietkowski, J. S.
Gas Turbine Testing on Naval Distillate Fuel [71-GT-62] (*A*) ..... Jl 39
Sieves
Screening Mineral Samples (*NTB*) ..... Je 30
Sigma Computers
Science-Oriented Computer (*BTR*) ..... Je 29
Signals
The Frequency Response of First and Second Order Lag Systems to Pulse Width Modulated Signals [70-WA/Aut-8] (*A*) ..... F 70
Transmission of a Fluidic Signal at Intermediate Distances [70-WA/Flcs-15] (*A*) ..... Je 44
Silencers, Silencing
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Design and Performance of High-Pressure Blowoff Silencers [70-WA/Pet-1] (*A*) Ap 54
Prediction of Silencer Performance Using Transmission Line Theory [71-GT-8] (*A*) ..... Ag 44
Silencing Considerations for Large Gas Turbine Generator Sets [71-GT-26] (*A*) ..... Ag 45
Silicon
Hot Wafers (*PB*) ..... N 47
Silicon Nitride
High-Temperature Materials (*OS*) ..... Jl 35
Silicone
Victory Seal (*BTR*) ..... Ja 33
Sill Cushioning
Design Considerations for Car Body Bolster Through Sill-Cushioned Underframe Freight Car [70-WA/RR-5] (*A*) ..... Je 42
Silos
Semimembrane Analysis of Cylindrical Shells Subjected to Wind Loading [70-WA/APM-7] (*A*) My 57
Simmonds, J. G.
Concentrated Forces on Shallow Cylindrical Shells [70-WA/APM-2] (*A*) ..... My 57
Simon, B. R.
Large Deformation Analysis of the Arterial Cross Section [70-WA/BHF-15] (*A*) ..... Ap 63
Simoneau, R. J.
Velocity and Temperature Profiles in Near-Critical Nitrogen [71-HT-23] (*A*) ..... O 62
Simons, Eugene M. elected Fellow ASME N 91
Simpson, A. M. deceased ..... N 93
Simpson, James H. deceased ..... Mr 88
Simpson, John W. selected by IEEE to receive 1971 Edison Medal ..... Ap 85
Simpson, William K. deceased ..... F 106
Sims, G. E.
Ultrasonic Velocity of Sound and Void Fraction in a Bubbly Mixture [71-FE-26] (*A*) ..... S 52
Simulation Method
Modeling Dimensions and Tolerances by Simulation [71-DE-5] (*A*) ..... Jl 44
A Relaxation and Gradient Combination Applied to the Computer Simulation of a Plane Four-Bar Chain [70-Mech-20] (*A*) ..... Ja 48
Simulation of the Dynamics of Machinery [71-Vibr-111] (*A*) ..... D 55
Simulators
Undersea Simulator (*OS*) ..... O 53
Sines, G.
Embrittlement of Precipitation Hardenable Nickel-Base Alloys by Oxygen [71-Met-D] (*A*) ... Ag 48
Singleton, James M.
1971 Winner of Charles T. Main Award S 34, N 83
The Engineer and Society: Students Speak Out: Can Engineers Continue to Advance Human Welfare? (*A*) ..... S 34
Sinking
Controlled Sinking of Large Concrete Ocean Structures [71-UnT-6] (*A*) ..... D 47
Siphons
Self-Sealing Closure (*NTB*) ..... O 44
Siryj, B. W.
Air Bearings for High-Speed Mirrors Rotating in a Vacuum [70-Lub-15] (*A*) ..... Ja 43
Siting
The Crisis in Power-Plant Siting [based on 70-WA/Ener-12] ..... Je 10
Emissions (*C*) ..... D 57
Power-Plant Siting ..... (*C*) (*AC*) Ag 57, (*C*) (*D*) S 59, D 57
Changing Emphasis in the Siting of Steam Electric Power Plants [70-WA/Ener-12] (*A*) Ap 62
Fast Reactor Siting and Safety (AEC Regulatory Procedures and Views) [71-NE-4] (*A*) ..... Jl 43
Research into Cooling-Water Discharge (*BTR*) Ag 35
Site Surveying for Ocean Floor Structures [71-UnT-8] (*A*) ..... D 47
Skid
Anti-Skid System (*BTR*) ..... O 49
Skin
The Effect of Stringer Width and Damping on the Response of Skin-Stringer Structures [71-Vibr-101] (*A*) ..... D 54
An Instrument for Skin-Friction Measurements in Thin Boundary Layers [71-FE-27] (*A*) ..... S 52
Skin Friction Drag and Velocity Profile Measurement Techniques in Two-Phase Flow [71-FE-32] (*A*) ..... S 52
Skitt, James B., Jr. deceased ..... My 91
Skoglund, Victor J.
Radial Flow Measurements of Hydrogen Near Its Critical Point in a Heated Cylindrical Tube [71-HT-25] (*A*) ..... O 62
Skop, R. A.
Aerodynamic Approximations for Unsteady Supersonic Flow Through Ducts of Revolution [71-Vibr-23] (*A*) ..... N 50
Skreiner, M.
On a Model of a Pneumatically Actuated Mechanical System [70-Mech-34] (*A*) ..... Ja 49
Tolerance Analysis of Mechanisms Using PA-300: A General Probabilistic Problem Solving Language [70-Mech-44] (*A*) ..... Ja 50
Skunda, M.
Evaluation of Machinability and Machining Parameters of Cold Formed Steel Parts [71-DE-42] (*A*) ..... Ag 46
Slabs
Natural Frequency Determination of Long Span Floor Slabs [71-Vibr-8] (*A*) ..... N 48
Slack, J. B.
Energy Systems in Large Process Plants [71-Pet-13] (*A*) ..... D 48
Slag
Making Specialty Steel in a Special Way (*BTR*) Ja 36
Sleeves
See also Bearings
Fiber Risers (*PB*) ..... Ap 50
Sliders, Slides, Sliding
Designing for Wear Characteristics of Members in Sliding Mechanisms [71-DE-39] (*A*) ..... Ag 46
Fluid Rheological Effects in Sliding Elastohydrodynamic Point Contacts With Transient Loading
1—Film Thickness [70-Lub-21] (*A*) ..... Ja 45
2—Traction [70-Lub-22] (*A*) ..... Ja 45
Nonlinear Dynamic Response of Elastic Slider-Crank Mechanism [70-Mech-39] (*A*) ..... Ja 50
Reduction of Shaking Forces in a Slider Crank Mechanism [70-Mech-73] (*A*) ..... Ja 53
Slip
Low-Speed Slip Flow over a Wedge [70-WA/APM-26] (*A*) ..... My 59
Theory of the Oscillating Viscometer for Slip Flow [71-APM-K] (*A*) ..... O 60
Slope, Sloping
Performance of Compressor Blade Rows in a Sloping Flowpath [71-GT-13] (*A*) ..... Jl 36
Slot, Thomas receives award for outstanding paper at 1st International Pressure Vessel Technology Conference (1969) ..... Jl 64
Effective Elastic Constants for Thick Perforated Plates with Square and Triangular Penetration Patterns [71-PVP-17] (*A*) ..... Ag 51
Slots
The Effectiveness of Film Cooling with Three-Dimensional Slot Geometries [71-GT-11] (*A*) Jl 36
Small, N. C.
Hydro-Rotational Stability of a Slender Plate in a Rectangular Flow Channel [71-Vibr-37] (*A*) N 51
Small, S. W.
Large-Diameter Submarine Pipelines for Tanker Terminals [71-UnT-1] (*A*) ..... D 46
Smalley, A. J.
Dynamic Shock Phenomena in Rolling Mills [71-Vibr-95] (*A*) ..... D 53
Smart, W. H.
Design and Performance of a Solid Electrolyte Oxygen Generator Test Module [71-Av-8] (*A*) O 55
Smelters
Elemental Sulfur Pilot Plant (*NB*) ..... D 66
Smiddy, Harold F. elected Fellow ASME N 91
Ten Years' Progress in Management, 1960–1970
I: Management, An Appraisal and Overview
Managerial Progress in the Sixties—Some Summary Reactions [70-WA/Mgt-10] (*A*) Mr 57
Smith, F. W.
Stress-Intensity Factors for a Surface Crack in a Finite Solid [71-APMW-6] (*A*) ..... N 55
Smith, H. F.
Gas Turbine Propulsion for High Utilization Cargo Ships [71-GT-83] (*A*) ..... Jl 41
Smith, H. H.
Fatigue Crack Growth in Type 316 Stainless Steel at High Temperature [71-PVP-25] (*A*) ... Ag 52
Smith, H. L.
Cyclic Energy Demands Supplied Economically with Gas Turbines and Combined Cycle Plants [71-GT-71] (*A*) ..... Jl 40
Smith, H. Raymond deceased ..... Ja 107
Smith, Lester C. receives Fellow ASME certificate Ap 86; retires as president of Spencer Turbine Co., Hartford, Conn. ... S 97
Smith, R. V.
Two-Phase, Two-Component Critical Flow in a Venturi [71-FE-4] (*A*) ..... Ag 54
Smith, Richard P.
Evolution and Technology (*C*) ..... O 64
Smith, Roscoe D. deceased ..... My 91
Smith, W. L.
Performance Evaluation of a 2.1-MW Gas Turbine Generator Set Using Computerized Data Acquisition [71-GT-36] (*A*) ..... Jl 38
Smith, William A. appointed vice-president in charge of newly formed Service Div. of Williams Instrument Co., San Fernando, Calif. ..... Jl 74
Smoke
Coming: The New York Banana (*BTR*) ..... S 38
Standard Measurement of Aircraft Gas Turbine Engine Exhaust Smoke [71-GT-88] (*A*) ..... Jl 42
SMUD (Sacramento Municipal Utility District)
Rancho SECO Quality Assurance Program [70-WA/NE-1] (*A*) ..... My 55
Smurr, Floyd W. appointed senior projects manager in Power Plant Division, Commonwealth Services Inc. ..... Ja 105
Snapping
Thermal Buckling and Snapping of a Circular Ring [71-DE-B] (*A*) ..... Jl 48
SNG
See Substitute Natural Gas
Snider, W. D.
Heat-Transfer Performance of Internally Finned Tubes [71-HT-31] (*A*) ..... O 63
Snyder, Edward W. deceased ..... My 91
Snyder, George A. appointed manager of the technical analysis section, Dravo Corp. Research and Development Department Je 77
Snyder, Joel D., III receives Graduate Paper Honor Prize from SNAME ..... Ja 105
Social Responsibility
Williston Medal Contest Papers of 1971
Civic Service: Young Engineers Set Forth Bold Views ..... Ag 31
Winner
JAMES A. WILLMS
To Be a Good Citizen (*A*) ..... Ag 32
Runnersup
ADNAN AKAY
What Can an Engineer Do? (*A*) ..... Ag 32
P. H. BARRETT
Right Man—Wrong Job (*A*) ..... Ag 32
DANIEL T. DALEY
The Image of an Engineer (*A*) ..... Ag 33
THOMAS KELCEC
Engineering, Ethics, and the Environment (*A*) Ag 33
HORST KLEIN
The Responsibilities of the Engineer to the Craftsman (*A*) ..... Ag 33
RALPH F. NELSON JR.
Engineering: A Hope for the Future or a Relic of the Past (*A*) ..... Ag 33
Society
Assessment—By Whom, for Whom? [70-WA/Av-5] (*A*) ..... F 68
Better Public Transportation for Aged (*NB*) D 67
The Crisis in Power-Plant Siting [based on 70-WA/Ener-12] ..... Je 10
Emissions (*C*) (*D*) ..... D 57
Power-Plant Siting (*C*) (*AC*) Ag 57; (*C*) (*D*) S 59, D 57
Changing Emphasis in the Siting of Steam Electric Power Plants [70-WA/Ener-12] (*A*) Ap 62
Engineering a Better Environment
2: High-Speed Interurban Transportation System
Fast Transit Link [based on 69-WA/PID-11]
Fast Transit Link (*C*) (*D*) (*AC*) ..... Mr 66
7: The Environment-Energy Balance: Needed Actions ..... My 33
Environment-Energy Balance (*C*) Jl 51, Ag 56
Engineering a Better Environment (*Ed*) ..... Ja 9
Engineering Water Resources for 2070 [based on 70-WA/PID-8] ..... Jl 7
Water Resources for 2070 (*C*) ..... D 56
Engineering Water Resources of the Future [70-WA/PID-8] (*A*) ..... Mr 64

Society (*Continued*)
Evolution and Technology in Conflict.....Mr 18
Evolution and Technology (*C*).....My 60, Je 51, Jl 52, Ag 56, O 64
Growth ≠ Progress?.....Ap 20
Growth ≠ Progress?..(*C*) (*D*) Je 52, Jl 50, S 58; (*C*) (*AC*) S 58, O 64
IIT Students Probe Quality of Life in 21st Century (*EN*).....N 70
Legal and Moral Responsibilities of Engineers Toward Public Safety [70-WA/Av-2] (*A*)..F 68
Main (Charles T.) Award Contest Papers of 1971
The Engineer and Society: Students Speak Out S 33
Winner
JAMES M. SINGLETON
Can Engineers Continue to Advance Human Welfare? (*A*).....S 34
Runnersup
ALAN D. ANDERSON
How to Fight Pollution (*A*).....S 34
RONALD WAYNE BURR
Technician to Politician—One Small Step for Man (*A*).....S 34
JACK GAMMILL CLEMENS
How Engineers Can Improve Their Standing in Society (*A*).....S 35
K. FRED RIST
Traffic Safety and the Engineer (*A*).....S 35
DEBORAH M. SCHMITZ
Social Responsibility and Engineering (*A*)....S 35
"The Revolt of the Engineers: Social Responsibility and the American Engineering Profession" (*BR*).....O 66
Slow Death of a Free Profession [70-WA/Av-1] (*A*) F 68
Technology for Tomorrow vs. Profit for Today [1970 Wright Lecture].....My 16
Technology vs. Profit (*C*).....Jl 52
Ten Years' Progress in Management, 1960–1970
II: Management's Social Responsibilities
The Price of Success—Management Leadership in a Pluralistic Society (1970 Towne Lecture) [70-WA/Mgt-14] (*A*).....Mr 57
Society for Advancement of Management elects Ernest T. Tierney executive vice-president.....S 97
Society of Manufacturing Engineers elects Edgar M. Ketchie national director for Region V and installs M. Eugene Merchant as an At-Large Director.....F 101
Society of Naval Architects and Marine Engineers
SNAME awards
Graduate Paper Award to Leonardo Perez y Perez.....Ja 105
Graduate Paper Honor Prize to Joel D. Snyder, III.....Ja 105
Linnard (Capt. Joseph H.) Prize to Frank M. Lewis.....Ja 105
Society of Plastics Engineers gives annual Plastics Science and Engineering International Award to Albert G. H. Dietz.....Je 77
Sodium
Applicability of EBR-II Experience to Commercial LMFBR's [71-NE-f1] (*A*).....Jl 43
Experience with Sodium-Heated Steam Generator [71-NE-15] (*A*).....Jl 44
Maintenance of Radioactive Sodium Systems at EBR-II [71-NE-12] (*A*).....Jl 43
Performance Changes of a Sodium-Heated Steam Generator [71-HT-15] (*A*).....O 62
Safety Criteria and Design for an FBR Demonstration Plant [71-NE-17] (*A*).....Jl 44
Sodium-Heated Modular Steam Generator Design and Development [71-NE-10] (*A*).....Jl 43
Sodium Hypochlorite
A Continuous, Automatic, High-Strength, High-Capacity Plant to Manufacture Sodium Hypochlorite at Atmospheric Pressure [70-WA/PID-7] (*A*).....Mr 63
Soedel, W.
Lumped Parameter Modeling of a Nonlinear Pneumatic-Mechanical System [71-Vibr-41] (*A*) N 51
Sokolov, M.
Distribution of Mass, Velocity, and Intensity of Turbulence in a Two-Phase Turbulent Jet [70-WA/APM-45] (*A*).....Je 48
Solar Technology
The Design, Performance, and Some Applications of a Non-Electronic Solar Tracker [70-WA/Sol-2] (*A*).....F 64
Design and Performance of a Compact Solar Refrigeration System [70-WA/Sol-4] (*A*)...F 64
Digital Simulation of Nocturnal Production of a Solar Still [70-WA/Sol-6] (*A*).....F 65
The Effect of Solar Radiation on the Energy Balance of a Controlled-Environment Greenhouse [70-WA/Sol-3] (*A*).....F 64
Performance of Air-Cooled Radiatively Heated Screen Matrices [70-WA/Sol-1] (*A*).....F 64
Power in the Year 2001
Part 1—Dawn of the Solar Age.....S 24
Power in the Year 2001 (*C*).....N 60
Part 2—Thermal Sea Power.....O 21
Part 3—Solar Power.....N 33
Part 4— Rock Burning.....D 27
Sea Burning.....D 30
Power-Full Shade (*PB*).....Ag 41
Seven-Minute Solar Eclipse (*NB*).....N 68
Solar-Powered Refrigeration [based on 70-WA/Sol-5].....Je 22
Economic Aspects of Solar-Powered Absorption Refrigeration [70-WA/Sol-5] (*A*).....F 65
Solid-State Devices
The Solid-State Lamp [based on 71-DE-6]....N 22
Solid-State Light Sources [71-DE-6] (*A*)...Jl 45
Solid Wastes
See Refuse Treatment; Solids; Waste Handling
Solidification
The Effect of Droplet Solidification Upon Two-Phase Nozzle Flow [71-FE-11] (*A*).....Ag 54
Solids
Addition of Heated Solid Particles to a Gas Flowing in a Pipe [71-FE-22] (*A*).....Ag 55
Analyses of Axisymmetric Upsetting and Plane-Strain Side-Pressing of Solid Cylinders by the Finite Element Method [70-WA/Prod-4] (*A*) Mr 59
Some Aspects of Gas-Solid Suspension Turbulence [71-FE-15] (*A*).....Ag 55
Creep at Constant Stress in Isotropic Solids [71-APM-23] (*A*).....S 57
The Effect of Liquids on the Dynamic Motions of Immersed Solids [71-Vibr-100] (*A*).....D 53
Electromagneto-Thermoelastic Plane Waves in Solids with Thermal Relaxation [71-APMW-5] (*A*).....N 55
The Intersections of Solids Shown by Electronic Analog for Mechanism Simulation [70-Mech-6] (*A*).....Ja 46
Miniature Grinder for Solid Specimens (*NTB*) Ag 37
Response of a Semi-Infinite Elastic Solid to an Arbitrary Line Load Along the Axis [71-APMW-1] (*A*).....N 55
The Scattering of Shock Waves by Cylindrical Cavities in Liquids and Solids [70-WA/APM-57] (*A*).....Je 49
Stress-Intensity Factors for a Surface Crack in a Finite Solid [71-APMW-6] (*A*).....N 55
Surface Temperatures and Heat Fluxes Associated with the Evaporation of a Liquid Film on a Semi-Infinite Solid [71-HT-C] (*A*).....N 58
Unsteady Flow About a Solid Cylinder Falling Through a Viscous Fluid Contained in a Vertical Tube [70-WA/FE-9] (*A*).....F 72
Yield Criteria and the Bauschinger Effect for a Plastic Solid [71-Met-P] (*A*).....S 55
Solution Methods
Normal Mode Solution for the Vibrational Motions of Long Flexible Booms on the RAE Satellite [71-DE-J] (*A*).....Jl 48
Solvents
Keeping Solvent (*PB*).....Ag 40
Somayajulu, K. D. S. R.
An Analysis of Vane-in-Rotor Pump [70-WA/FE-21] (*A*).....F 74
Sommerlad, Robert E. appointed head of air pollution control section, applied thermodynamics department for the Foster Wheeler Corp. Research Division located in John Blizard Research Center near corporation's general offices in Livingston, N. J. ....Ap 86
Soni, A. H.
Closed-Form Displacement Relations of a Five-Link R-R-C-C-R Spatial Mechanism [70-Mech-35] (*A*).....Ja 49
Coupler Cognates of Eight-Link Mechanisms
Part 1—With Ternary and Quaternary Links [70-Mech-66] (*A*).....Ja 52
Part 2—With Ternary Links and Double Joints [70-Mech-67] (*A*).....Ja 52
Design of Spatial Four-Link Crank-Rocker Mechanisms With or Without a Passive Constraint [70-Mech-7] (*A*).....Ja 46
Existence Criteria of an Overconstrained Spatial Mechanism with Three Revolute Pairs and One Spherical Pair [70-Mech-72] (*A*).....Ja 52
Multi-Generation Theorem for Spatial Four-Link Mechanisms via Uni-Axial Stretch-Rotation [70-Mech-60] (*A*).....Ja 52
Roberts' Cognate of Space Five-Link RHHHH and HHRHH Mechanisms [70-Mech-36] (*A*) Ja 49
Structural Analysis of Two General Constraint Kinematic Chains and Their Practical Application [70-Mech-37] (*A*).....Ja 49
Synthesis of Four-Link Space Mechanisms via Extension of Point-Position-Reduction Technique [70-Mech-17] (*A*).....Ja 47
Synthesis of Six-Link Mechanisms for Simultaneous Coordination of Coupler, Input, and Output Links [70-Mech-57] (*A*).....Ja 51
Sonic Boom
A Numerical Method for Predicting the Pressure History of a Sonic Boom Wave Incident on Arbitrarily Oriented Plane Walls [70-WA/APM-9] (*A*).....My 57
Sonics
Nondestructive Sonic Testing of Adhesive-Bonded Composites (*NTB*).....Jl 30
Sontheimer, J. A. deceased.....D 83
Sood, V. K.
Stress Distributions in Some Diesel Engine Crankshafts [71-DGP-1] (*A*).....Ag 48
Sopris, R. F. deceased.....O 91
Sopwith, Douglas G. deceased.....Ja 107
Sorensen, Arthur, Jr.
Determining Critical Speeds of a Crankshaft-Flywheel Assembly for an Outboard Motor [71-Vibr-54] (*A*).....N 52
Publication of Papers (*C*).....O 65
Soroka, Walter W. named head of continuing education in engineering at University of California Extension, Berkeley, Calif. ...N 89
Sorting
Sorting Things Out (*BTR*).....D 37
Sound
See also Noise
Noise Abatement in Industry
Gas Turbine Noise Abatement
The Sound of Gas-Turbine Installations [70-WA/GT-6] (*A*).....Ap 56
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Multiple Excitations of Structures and Enclosures [70-WA/DE-8] (*A*)...F 66, Ap 55
Response and Internal Noise of a Fuselage to Random Excitation [70-WA/DE-9] (*A*) F 66, Ap 55
Response of Structures to Nonhomogeneous Random Pressure Fields [70-WA/DE-11] (*A*).....F 66, Ap 56
Sound and Vibration Transmission Through Panels and Tie Beams Using Statistical Energy Analysis [70-WA/DE-2] (*A*) F 65, Ap 55
Sound Transmission Through an Elastic Enclosure Acoustically Closely Coupled to a Noise Source [70-WA/DE-12] (*A*) F 67, Ap 56
Underwater Behavior of Free-Flooded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
Vibration Response and Wave Propagation in Periodic Structures [70-WA/DE-3] (*A*) F 65, Ap 55
On the Prediction of Aerodynamically Created Sound Pressure Level of Control Valves [70-WA/FE-28] (*A*).....F 74
The Radiation of Sound from an Airfoil Immersed in a Laminar Flow [71-GT-4] (*A*).....Ag 44
Ultrasonic Velocity of Sound and Void Fraction in a Bubbly Mixture [71-FE-26] (*A*).....S 52
Soussou, J.
Determination of the Duration of Memory for Viscoelastic Materials [70-WA/APM-4] (*A*) My 57
Southwest Experimental Fast Oxide Reactor
SEFOR Operating Experience [71-NE-7] (*A*) Jl 43
Southwest Research Institute
Fluid Fire Safety Facility
Leadless Gas a Fire Hazard? (*BTR*).....O 43
Space, Spacing
Dynamic Response of a Rigid Footing Bonded to an Elastic Half Space [71-APMW-15] (*A*)..N 56
Elastic-Plastic Plane Waves with Combined Compressive and Two Shear Stresses in a Half Space [71-APM-10] (*A*).....S 56
Guided Surface Waves on an Elastic Half Space [71-APM-7] (*A*).....S 55
Harmonic Response of Masses on an Elastic Half Space [71-Vibr-59] (*A*).....N 53
Steady Motion of a Rigid Strip Bonded to an Elastic Half Space [70-WA/APM-56] (*A*) Je 49
Thermal Stresses in an Orthotropic Elastic Semi-space [71-APM-18] (*A*).....S 56
Space Program
See United States
Space Shuttle
See Vehicles, Space
Space Technology
See also Aviation; Manned Space Station
Atomic-Powered Space System (*BTR*).....F 57
Fluidic Temperature Control for Liquid-Cooled Space Suits [70-WA/Flcs-19] (*A*).....Je 44

Space Technology (*Continued*)
Holographic Characterization of Aerospace Components [71-GT-74] (*A*) ..... **Jl 40**
The Laser in Aerospace (*BTR*) ..... **My 43**
Life Clues in Interstellar Space (*BTR*) ..... **O 43**
Man-Made Lunar Explosions (*BTR*) ..... **F 56**
Space Shuttle Study (*NB*) ..... **Mr 72**
Spacecraft
See Vehicles, Space
Spachner, S. A.
Techniques to Produce Short-Term Profitability in Research and Development Operations [71-DE-15] (*A*) ..... **Jl 46**
Spain
New Steelworks in Operation (*OS*) ..... **S 46**
Spalding, F. W. deceased ..... **Je 80**
Sparks, Cecil R.
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Design and Performance of High-Pressure Blowoff Silencers [70-WA/Pet-1] (*A*) **Ap 54**
Sparrow, E. M.
Flow Development in a Channel Having a Longitudinally Moving Wall [70-WA/APM-11] (*A*) **My 58**
Free-Stream Turbulence Effects on Local Heat Transfer from a Sphere [71-HT-8] (*A*) ..... **O 61**
Local Non-Similarity Thermal Boundary-Layer Solutions [71-HT-L] (*A*) ..... **N 59**
Low Reynolds Number Turbulent Flow in Large Aspect Ratio Rectangular Ducts [71-FE-A] (*A*) **S 53**
Spatial Mechanisms
See Mechanisms
Speaker Recognition System
"Voiceprint" Identification (*BTR*) ..... **Ja 31**
Specifications
Processing Revisions of Specifications in Engineering [71-DE-46] (*A*) ..... **Ag 47**
Speckhart, F. H.
Calculation of Tolerance Based on a Minimum Cost Approach [71-Vibr-114] (*A*) ..... **D 55**
Spectrophotometry
Infrared Spectrophotometry as a Quality Control Tool [71-DE-44] (*A*) ..... **Ag 47**
Spectroscopy, Stellar
Light Collector (*PB*) ..... **N 47**
Speech
See Vocalism
Speech, Synthetic
"Talking" Computer (*BTR*) ..... **Ap 49**
Speed Technology
See also High-Speed Technology
Avoiding Iterative Searches to Find Critical Speeds of Rotating Shafts with the Transfer Matrix Method [71-Vibr-53] (*A*) ..... **N 52**
Determining Critical Speeds of a Crankshaft-Flywheel Assembly for an Outboard Motor [71-Vibr-54] (*A*) ..... **N 52**
On the Initial Speed of Elastic-Plastic Boundaries in Longitudinal Wave Propagation in a Rod [70-WA/APM-50] (*A*) ..... **Je 48**
A Qualitative Study of Gas Bearings Operating at High Subsonic and Supersonic Tangential Speeds [71-APM-U] (*A*) ..... **O 59**
Slow-Speed Drives for Miniature Devices (*NTB*) **Ja 34**
Speed Effects in Forging Lubrication [70-Lub-11] (*A*) ..... **Ja 42**
Speight, F. Y.
Simplified Techniques for Personal Filing and Retrieval of Engineering Information [71-DE-48] (*A*) ..... **Ag 47**
Spencer, A. C. deceased ..... **Je 80**
Spencer, John F.
Ten Years' Progress in Management, 1960–1970
III: General and Operations Management
Physical Distribution—A New Dimension of Management Control [70-WA/Mgt-13] (*A*) **Mr 58**
Spencer, Robert C., Jr. receives 1970 George Westinghouse Award ..... **S 91**
Sperry (Elmer A.) Medal
See Honors
Spheres
Acrylic Pressure Hull for Submersible NEMO [71-UnT-2] (*A*) ..... **D 46**
Analytical Investigations of Compact Reinforcement for Radial Nozzles in Spherical Shells [71-PVP-26] (*A*) ..... **Ag 52**
Axisymmetric Elasticity Solutions of Spherical Shell Segments [70-WA/APM-27] (*A*) ..... **Je 46**
Axisymmetric Postbuckling and Nonsymmetric Buckling of a Spherical Shell Compressed Between Rigid Plates [71-APMW-7] (*A*) ..... **N 55**
Buckling Vessels Composed of Combinations of Cylindrical and Spherical Shells [70-WA/APM-19] (*A*) ..... **My 58**
Dimensional Synthesis of the Spherical Double-Rocker Mechanism [70-Mech-81] (*A*) ..... **Ja 54**
Dynamics of a Submerged Ring-Stiffened Spherical Shell [70-WA/APM-42] (*A*) ..... **Je 47**
The Effect of Curvature on Heat or Mass Transfer from an Isothermal Sphere [71-HT-7] (*A*) ..... **O 61**
Existence Criteria of an Overconstrained Spatial Mechanism with Three Revolute Pairs and One Spherical Pair [70-Mech-72] (*A*) ..... **Ja 52**
Expanded-Sphere Sandwich Structure [70-WA/UnT-7] (*A*) ..... **Je 46**
Fabrication of NEMO Type Spherical Acrylic Capsules for Underwater Vehicles [70-WA/UnT-4] (*A*) ..... **Je 45**
Free-Stream Turbulence Effects on Local Heat Transfer from a Sphere [71-HT-8] (*A*) ..... **O 61**
The Free Vibrations of a Spinning Centrally Clamped Shallow Spherical Shell [71-APM-G] (*A*) ..... **O 60**
The Influence of Residual Stresses on the Collapse Pressure of Cold Pressed Spherical Shells [70-WA/UnT-1] (*A*) ..... **Je 45**
Investigation of the Spherical Hydrostatic Gas Bearing for Two-Axis Gyros [70-Lub-6] (*A*) **Ja 42**
Large Deflections of a Linearly Viscoelastic Shallow Spherical Shell [71-APMW-28] (*A*) ..... **N 57**
Measurement of Energy Dissipation in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-4] (*A*) ..... **S 55**
The Natural Frequencies of Two Spherical Bubbles Oscillating in Water [70-WA/FE-7] (*A*) ..... **F 72**
Nonlinear Effects in the Collapse of a Nearly Spherical Cavity in a Liquid [71-FE-5] (*A*) **Ag 54**
Numerical Computation of Spherical Waves in Two Viscoelastic Media [71-APMW-23] (*A*) **N 57**
Optimization of Spherical Four-Bar Generators [70-Mech-46] (*A*) ..... **Ja 50**
Rigid-Body Approximations to Turbulent Motion in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-Y] (*A*) ..... **O 60**
Spherical Acrylic Pressure Hulls for Undersea Exploration [70-WA/UnT-3] (*A*) ..... **Je 45**
Spherical Grinder (*OS*) ..... **S 47**
Spherical Linkage Synthesis Using Stereographic Projection [70-Mech-71] (*A*) ..... **Ja 52**
Stress Distribution of a Cylindrical Shell Nonradially Attached to a Spherical Pressure Vessel [71-PVP-42] (*A*) ..... **S 48**
Thermal Stresses Near a Prolate Spheroidal Inclusion [70-WA/APM-16] (*A*) ..... **My 58**
Transient Interaction of Spherical Acoustic Waves and a Spherical Elastic Shell [70-WA/APM-29] (*A*) ..... **Je 46**
The Use of a Planar Mechanism Synthesis to Produce a Spherical Path Generator Linkage [70-Mech-51] (*A*) ..... **Ja 51**
Spiegel, James I. promoted to new position of vice-president—operations of Gulf & Western Systems Co., a subsidiary of Gulf & Western Industries, Inc. ..... **Ja 104**
Spiering, G. A.
Experimental Effort on Bursting of Constrained Disks as Related to the Effective Utilization of Yield Strength [71-PVP-49] (*A*) ..... **S 48**
Spine
The Dynamic Characteristics of the Human Intervertebral Joint [70-WA/BHF-6] (*A*) ..... **Ap 63**
Spinning
The Free Vibrations of a Spinning Centrally Clamped Shallow Spherical Shell [71-APM-G] (*A*) ..... **O 60**
Spools
Experimental Investigation of Methods for Improving the Dynamic Response of a Twin-Spool Turbojet Engine [71-GT-14] (*A*) ..... **Jl 36**
Spotts, Merhyle F. elected Fellow ASME **Je 78**
Spragg, D.
Generalized Cycloidal Motion [70-Mech-22] (*A*) **Ja 48**
Spread, Spread Rate
On the Correlation of Analytical and Experimental Free Shear Layer Similarity Profiles by Spread Rate Parameters [70-WA/FE-12] (*A*) ..... **F 72**
Springback
An Investigation of Springback in Wire Products [71-Prod-3] (*A*) ..... **Jl 48**
Springs
Compression Springs for Vibration Isolation (*NTB*) **Ap 46**
Developing Composites for Torsional Damper-Spring Systems [71-DE-31] (*A*) ..... **Jl 47**
Spring and Follower Characteristics Due to Internal Damping and Cam Actuation [70-Mech-76] (*A*) ..... **Ja 53**
Surge Waves in Stranded Springs [71-Vibr-94] (*A*) **D 53**
Spurs
Dynamic Loads on Spur Gear Teeth by Analog Computation [71-DE-26] (*A*) ..... **Jl 46**
Sridhar, B. N.
Optimization of Spherical Four-Bar Generators [70-Mech-46] (*A*) ..... **Ja 50**
Spherical Linkage Synthesis Using Stereographic Projection [70-Mech-71] (*A*) ..... **Ja 52**
Sridhar, R.
Approximate Nonlinear Filters and Deterministic Filter Gains [70-WA/Aut-9] (*A*) ..... **F 70**
Srinivasan, A. V.
Traveling Waves in Rotating Cylindrical Shells [71-DE-A] (*A*) ..... **Jl 47**
SST
See Supersonic Transport
Stability
Dynamic Stability Analysis of Linkages with Elastic Members via Analog Simulation [70-Mech-48] (*A*) ..... **Ja 51**
Dynamic Stability of a Beam Carrying Moving Masses [71-APM-M] (*A*) ..... **O 59**
Hydro-Rotational Stability of a Slender Plate in a Rectangular Flow Channel [71-Vibr-37] (*A*) **N 51**
The Influence of a Free Surface on the Hydroelastic Stability of a Flat Panel [71-APM-16] (*A*) **S 56**
On the Influence of Water Turbine Characteristic on Stability and Response [70-WA/FE-15] (*A*) **F 73**
Stability and Boundedness Domains of Autonomous Discrete-Time Systems [70-WA/Aut-12] (*A*) ..... **F 70**
Stability and Transient Motion of a Vertical Three-Lobe Bearing System [71-Vibr-76] (*A*) ..... **D 52**
Stability of an Unsymmetrical Rotating Cantilever Shaft Carrying an Unsymmetrical Rotor [71-Vibr-58] (*A*) ..... **N 53**
Vibration and Dynamic Stability of an Axially Moving Belt [71-Vibr-31] (*A*) ..... **N 50**
Staehiw, J. D.
Acrylic Pressure Hull for Submersible NEMO [71-UnT-2] (*A*) ..... **D 46**
Procurement of Safe Viewports for Hyperbaric Chambers [71-PVP-1] (*A*) ..... **Ag 49**
Spherical Acrylic Pressure Hulls for Undersea Exploration [70-WA/UnT-3] (*A*) ..... **Je 45**
Staehura, M. P.
Automobile Bumper Testing with the Liberty Mutual Crash Simulator [71-Vibr-107] (*A*) **D 54**
Stacking
Photo Briefs
Low-Profile Electric Lift Trucks; Ready for Containerization; Swing Shift Lift Truck; Tape-Controlled Stacker Systems; Top Handling Attachment ..... **Jl 32, 33**
Stacks
Determination of Aerodynamic Behavior of Cantilevered Stacks and Towers of Circular Cross Section [71-Pet-36] (*A*) ..... **D 51**
Stains, W. A. deceased ..... **N 93**
Stajdohar, R. E.
Light Gas Gun for Powder Compaction [based on 70-WA/PT-4] ..... **Je 18**
Laboratory-Size Light Gas Gun—Design and Operation [70-WA/PT-4] (*A*) ..... **Mr 65**
Stalker, K. W.
Inertia Welded Jet Engine Components [71-GT-33] (*A*) ..... **Jl 37**
Stalnaker, R. L.
Head Injury Tolerance for Linear Impacts by Mechanical Impedance Methods [70-WA/BHF-4] (*A*) ..... **Ap 63**
Stamping
Optimal Torque Balance for a Complex Stamping and Indexing Machine [70-Mech-82] (*A*) **Ja 54**
Stanley, Maxwell C. elected chairman of the board of Stanley Consultants, Inc. ..... **Je 77**
Stanley, Richard H. elected president of Stanley Consultants, Inc. ..... **Je 77**
Stargardter, H.
Development of Borsic-Aluminum Composite Fan Blades for Supersonic Turbofan Engines [71-GT-90] (*A*) ..... **Jl 42**
Starkey, W. L.
Friction-Instability: A New Design Parameter for Brakes [71-DE-K] (*A*) ..... **Jl 48**
Starkman, Ernest S. elected a vice-president of General Motors in charge of Environmental Activities **Ap 85**; elected Fellow ASME .. **D 82**
Starr, J. B.
Fluidic Temperature Control for Liquid-Cooled Space Suits [70-WA/Flcs-19] (*A*) ..... **Je 44**
Starting Systems
The Jet Fuel Starter Goes Operational [71-GT-43] (*A*) ..... **Jl 38**
Starvation
Optical Analysis of Ball Bearing Starvation [70-Lub-19] (*A*) ..... **Ja 44**
Statistics
See also Weibull Statistical Parameters
Statistical Analysis of Adhesion Performance of Locomotives [70-WA/RR-8] (*A*) ..... **Je 42**
Two-Day Statistics and Environment Conference Slated for USC Campus [1972] (*EN*) ..... **D 69**
Stauffer, R. E.
The Use of Gas Turbines in Gas Pipeline Service in Western Canada—Present and Future [71-GT-37] (*A*) ..... **Jl 38**

Steam
Combined Helium and Steam Cycle for Nuclear Power Plants [based on 70-WA/NE-3] Ag 14
Combined Cycle (*C*) (*D*) (*AC*) ..... N 61
A Combined Helium and Steam Cycle for Nuclear Power Generation [70-WA/NE-3] (*A*) My 55
Geothermal Resources (*OS*) ..... My 51
Laminar Film Condensation from a Steam-Air Mixture Undergoing Forced Flow Down a Vertical Surface [71-HT-E] (*A*) ..... N 58
Reduction of Nitrogen Oxides from Gas Turbines by Steam Injection [71-GT-58] (*A*) ..... Ag 46
382-Ton Steam Drum (*PB*) ..... Ja 38
Steel
See also Chromium
Analysis of Radiation-Induced Embrittlement Gradients on Fracture Characteristics of Thick-Walled Pressure Vessel Steels [71-PVP-7] (*A*) Ag 50
Argon-Oxygen Process (*OS*) ..... My 50
Austenitic Stainless Steels with Unusual Mechanical and Corrosion Properties [71-Pet-38] (*A*) ..... D 51
Cause and Prevention of Stress-Relief Cracking in Quenched and Tempered Steel Weldments [71-PVP-3] (*A*) ..... Ag 49
Commercial Tool Steels via P/M Process (*BTR*) Je 33
Creep and Creep-Rupture Properties of Types 304N and 316N Stainless Steels [71-Pet-34] (*A*) D 50
Creep/Fatigue Interaction Correlation for 304 Stainless Steel Subjected to Strain-Controlled Cycling with Hold Times at Peak Strain [71-PVP-6] (*A*) ..... Ag 50
Development and Performance of a Vanadium-Nitrogen Treated Steel for High Strength Pipeline Fittings [71-Pet-18] (*A*) ..... D 49
The Effect of Composite on the Stress-Rupture Properties of Fully Austenitic Stainless Steel Welds [71-PVP-64] (*A*) ..... S 50
Effect of Heat Treatment of the Properties of 3½ Percent Nickel Steel [71-Pet-29] (*A*) ..... D 50
The Effect of Strain Rate and Temperature on Yielding in Steels [71-Met-R] (*A*) ..... S 55
The Effective Utilization of Yield Strength [71-PVP-11] (*A*) ..... Ag 51
The Effects of Vanadium in High Strength Low Alloy Steels [71-Pet-5] (*A*) ..... D 47
Elevated Temperature Properties of Maraging Steel Plates and Welds [71-Met-E] (*A*) ..... Ag 48
Engineering a Better Environment
3: Building a Pollution-Free Steel Plant ..... Ja 25
Evaluation of Machinability and Machining Parameters of Cold Formed Steel Parts [71-DE-42] (*A*) ..... Ag 46
Experimental Fabrications of a High Strength, Low Alloy Steel by Means of Last Pass Temperature Control [71-Met-1] (*A*) ..... Ag 47
Fatigue Crack Growth in Type 316 Stainless Steel at High Temperature [71-PVP-25] (*A*) ..... Ag 52
Fatigue-Crack Propagation in Steels of Various Yield Strengths [71-PVP-12] (*A*) ..... Ag 51
56-in. (1.4-m) Steel Pipe (*OS*) ..... Ag 43
Lubricant and Ball Steel Effects on Fatigue Life [70-Lub-16] (*A*) ..... Ja 44
Making Specialty Steel in a Special Way (*BTR*) Ja 36
A New Generation of Bulk Materials-Handling Systems Meets the Growing Demands of the Power, Steel, and Transportation Industries—Innovations in Compatible High-Capacity Components Enable Development of Fully Integrated High-Capacity Systems [70-WA/MH-2] (*A*) ..... My 53
New Steelworks in Operation (*OS*) ..... S 46
Notch-Ductility Transition of Structural Steels of Various Yield Strengths [71-PVP-19] (*A*) Ag 52
Phase Transformation Effects on the Bending Stress Distributions in Carburized Steel Components [71-Met-H] (*A*) ..... S 54
The Prediction of Press Loads in Deep Drawing Titanium 6 Al 4V, Stainless Steel AISI 304, and Inconel X Alloys at Various Conditions of Lubrication at Elevated Temperatures [70-WA/Prod-26] (*A*) ..... Mr 63
A Reassessment of Fracture-Safe Operating Criteria for Reactor Vessel Steels Based on Charpy-V Performance [70-WA/Met-1] (*A*) ..... My 52
Relationship Between Plane-Strain Ductility and K_{Ic} for Various Steels [71-PVP-13] (*A*) ..... Ag 51
Shear Fatigue Crack Propagation and Shear Fracture in a Ductile Steel HY-130 [71-PVP-54] (*A*) ..... S 50
A Study of Plunge (or Form) Machining of Low-Carbon Resulfurized Steel on a Multispindle Automatic Screw Machine
Part 1: Influence of Speed, Feed, and Ingot Variation on Diameter Increase and Surface Finish in Prolonged Machining [70-WA/Prod-18] (*A*) ..... Mr 61
Part 2: Influence of Speed, Feed, and Duration of Cutting on Worn Tool Geometry [70-WA/Prod-19] (*A*) ..... Mr 62
Some Tentative Weibullian Descriptions of the Properties of Steels, Aluminums, and Titaniums [71-Vibr-64] (*A*) ..... N 53
Undertuned (*PB*) ..... Ap 50, 51
Welding of Cryonic 5 Steel [71-Pet-33] (*A*) ..... D 50
Steel Industry
Steel [1971 outlook] (*NR*) ..... F 84
Steel Triangle
The Steel Triangle (*NB*) ..... D 66
Steele, Ralph W. joins Bilbyrne Corp. as vice-president—manager of engineering ..... O 89
Steen, Arthur B., Jr. deceased ..... Mr 88
Steepness
Behavior of a Steep Prestressed Arch Made from a Buckled Strut [70-WA/APM-15] (*A*) ..... My 58
Steidel, R. F., Jr.
The Dynamic Characteristics of the Human Intervertebral Joint [70-WA/BHF-6] (*A*) Ap 63
Steinman, H. I. deceased ..... N 93
Stencils
Slatted Stencil (*PB*) ..... O 50
Stephens, J. O.
For Gas Turbines: New Standard Rating Point O 34
Russia's 100-MW Gas Turbine (*C*) (*D*) ..... Ja 56
Stepping
Effect of Fillets on Stress Concentrations in Cylindrical Shells with Step Changes in Outside Diameter [71-PVP-27] (*A*) ..... Ag 52
Stereographic Projection
Spherical Linkage Synthesis Using Stereographic Projection [70-Mech-71] (*A*) ..... Ja 52
Stereoscopy
Stereoscopic Drawings Made by Analog Computer of Three Dimensional Surfaces Generated by Spatial Mechanism [70-Mech-38] (*A*) ..... Ja 49
Sterilization
The Use and Applications of Subatmospheric Pressures in Sterilization Processes—Vapor-Phase Sterilization [70-WA/PID-13] (*A*) Mr 64
Stern, M.
Wave Propagation in Viscoelastic Laminates [70-WA/APM-40] (*A*) ..... Je 47
Stern, Theodore becomes general manager of nuclear fuel division, Westinghouse Electric Corp. ..... Je 77
Sterne, Robert H., Jr. promoted to market development manager at Lukens Steel Co. N 89
Sternlicht, Beno receives honorary Doctor of Science degree from Union College ..... Jl 74
Stettenbenz, L. M.
Ecologic and Economic Benefits of the Power Recovery Gas Expander [71-Pet-11] (*A*) ..... D 48
Stevens, A. L.
Radial Stress Release Phenomena in Plate Impact Experiments: Compression—Release [71-APMW-16] (*A*) ..... N 56
Stevens, C. C. deceased ..... N 93
Stevens, C. G.
The Role of Chloride in the Corrosion Caused by Flue Gases and Their Deposits [70-WA/CD-1] (*A*) ..... Ap 64
Stevens, L. T. deceased ..... Ag 87
Stevens Institute of Technology to Admit Women (*EN*) ..... Ap 73
Stewart, M. G. deceased ..... F 106
Stewart, T. L.
Modeling Liquid Pipelines in Transient and Steady State (A Method for Digital Computers) [71-Pet-37] (*A*) ..... D 50
Stewart, Warner L. receives University of Cincinnati Distinguished Engineering Alumnus Award ..... Je 78
Stiffness
Dynamics of a Submerged Ring-Stiffened Spherical Shell [70-WA/APM-42] (*A*) ..... Je 47
Effective Stiffness of Concrete Coated Line Pipe [71-Pet-26] (*A*) ..... D 50
Optimum Damping and Stiffness in a Nonlinear Four-Degree-of-Freedom System Subject to Shock Load [70-WA/APM-18] (*A*) ..... My 58
Parametric Resonance of Stiffened Rectangular Plates [71-APM-26] (*A*) ..... S 57
Web-Stiffened Sandwich Structures [71-APM-8] (*A*) ..... S 55
Stills
Digital Simulation of Nocturnal Production of a Solar Still [70-WA/Sol-6] (*A*) ..... F 65
Stirbl, F. deceased ..... Jl 78
Stobbe, H.
Results of Experiments for Determining the Influence of Blade Profile Changes and Manufacturing Tolerances on the Efficiency, the Enthalpy Drop, and the Mass Flow of Multi-Stage Axial Turbines [70-WA/GT-4] (*A*) My 56
Stock, H. J.
The Adaptability of LWR Quality Assurance Standards to the LMFBR [71-NE-9] (*A*) ..... Jl 43
Stockpiling
High-Capacity Stockpiling and Reclaiming [70-WA/MH-6] (*A*) ..... My 53
Stoker, D. J.
Design of the Atomics International Fast Breeder Demonstration Plant [71-NE-16] (*A*) ..... Jl 44
Stoker, James Johnston receives Stephen P. Timoshenko Medal at 1970 WAM ..... Ja 73
Stoll, O. T.
Space Shuttle Orbiter Environmental Control and Life Support Systems [71-Av-15] (*A*) ..... O 56
Storage
Arrangement and Operation of a Bulk Material-Handling Terminal [70-WA/MH-3] (*A*) ..... My 53
Experience with Gas Turbines as Prime Movers for Underground Storage of Natural Gas [71-GT-27] (*A*) ..... Jl 36
Fuel Storage Tanks (*OS*) ..... F 63
"Off-Peak" Air Conditioning (*BTR*) ..... N 42
Storage Batteries
See Batteries
Strandness, D. E.
Large Deformation Analysis of the Arterial Cross Section [70-WA/BHF-15] (*A*) ..... Ap 63
Stratton, Julius A. receives Distinguished Achievement Award for Individuals at 3rd Offshore Technology Conference (1971) Je 55
Streams
Interaction of a Heated Jet with a Deflecting Stream [71-HT-2] (*A*) ..... O 60
The Mixing of Two Parallel Streams of Dissimilar Fluids
Part 1: Analytical Development [70-WA/APM-37] (*A*) ..... Je 47
(Turbulent Mixing of Two Parallel Streams)
Part 2: An Experimental Investigation [70-WA/APM-38] (*A*) ..... Je 47
Stresses and Strains
Analysis of Stresses in Pressurized Welded Pipe in the Creep Range [71-PVP-66] (*A*) ..... S 50
Approximate Stress Analysis of Pressurized Bore Intersections in Rectangular Blocks [71-PVP-35] (*A*) ..... Ag 53
Asymptotic Formulas for the Buckling Stresses of Axially Compressed Cylinders with Localized or Random Axisymmetric Imperfections [71-APM-29] (*A*) ..... S 57
Behavior of a Steep Prestressed Arch Made from a Buckled Strut [70-WA/APM-15] (*A*) ..... My 58
Behavioral and Stress Analysis of the NEMO Type Acrylic Hulls [70-WA/UnT-8] (*A*) ..... Je 45
Bounds on the Maximum Contact Stress of an Indented Elastic Layer [71-APM-E] (*A*) ..... O 60
Cause and Prevention of Stress-Relief Cracking in Quenched and Tempered Steel Weldments [71-PVP-3] (*A*) ..... Ag 49
Creep at Constant Stress in Isotropic Solids [71-APM-23] (*A*) ..... S 57
Creep/Fatigue Interaction Correlation for 304 Stainless Steel Subjected to Strain-Controlled Cycling with Hold Times at Peak Strain [71-PVP-6] (*A*) ..... Ag 50
Creep Stress Distribution in Long, Cylindrical Reactor Pressure Vessels [71-PVP-29] (*A*) ..... Ag 52
Cumulative Fatigue Damage Under Stress-Controlled Conditions [71-Met-M] (*A*) ..... S 54
Determination of Residual Stresses from Stress Intensity Factor Measurements [71-Met-A] (*A*) Ag 47
Determination of the Duration of Memory for Viscoelastic Materials [70-WA/APM-4] (*A*) My 57
Determination of the Unloading Boundary in Longitudinal Elastic-Plastic Stress Wave Propagation [71-APM-15] (*A*) ..... S 56
Drilling Riser Stress Measurements [71-Pet-1] (*A*) D 47
Dynamic Response of Cylindrical Shells with Initial Stress and Subjected to General Three-Dimensional Surface Loads [71-APM-12] (*A*) S 56
The Effect of Composite on the Stress-Rupture Properties of Fully Austenitic Stainless Steel Welds [71-PVP-64] (*A*) ..... S 50
Effect of Fillets on Stress Concentrations in Cylindrical Shells with Step Changes in Outside Diameter [71-PVP-27] (*A*) ..... Ag 52
Effect of Size on Cracking of Materials (*NTS*) S 40
The Effect of Strain Rate and Temperature on Yielding in Steels [71-Met-R] (*A*) ..... S 55
Elastic-Plastic Plane Waves with Combined Compressive and Two Shear Stresses in a Half Space [71-APM-10] (*A*) ..... S 56
An Experiment on Laser-Generated Stress Waves in a Circular Elastic Ring [71-APMW-2] (*A*) N 55
Experimental and Finite Element Stress Analysis of a Thin-Shelled Cylinder-to-Cylinder Model [71-PVP-36] (*A*) ..... Ag 53
An Experimental and Numerical Study of Elastic Strain Waves on the Center Line of a 6061-T6 Aluminum Bar [71-APMW-22] (*A*) ..... N 57

Stresses, Strains (*Continued*)
Experimental Stress Analysis of the Attachment Region of Hemispherical Shells with Single Attached Nozzles [71-PVP-41] (*A*) . . . . . S 48
Experimental Stress Analysis of 24-in. Tees [71-PVP-28] (*A*) . . . . . Ag 52
An Experimental Study of Dispersion of Stress Waves in a Fiber-Reinforced Composite [71-APM-27] (*A*) . . . . . S 57
Exploitation of Cu-Rich Damping Alloys
Part 1—The Search for Alloys with High Damping at Low Stress [71-Vibr-106] (*A*) . . . . . D 54
Factors Affecting Axle Stresses [70-WA/RR-6] (*A*) Je 42
On the Fundamental Mechanism of Large Strain Plastic Deformation, Electron Microscopy of Metal Cutting Chips [70-WA/Prod-11] (*A*) Mr 60
The Influence of Residual Stresses on the Collapse Pressure of Cold Pressed Spherical Shells [70-WA/UnT-1] (*A*) . . . . . Je 45
An Isothermal Analogy for Thermal Stress in Shells [71-PVP-18] (*A*) . . . . . Ag 51
A Linear Compressibility Assumption for the Multiple Integral Representation of Nonlinear Creep of Polyurethane [70-WA/APM-6] (*A*) My 57

Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Machinery Noise May Indicate Loss of Efficiency and Severity of Dynamic Stresses [70-WA/Pet-2] (*A*) . . . . . Ap 55
Noncontacting Optical Strain Device (*NTB*) My 47
Nonstationary Quasi-Static Thermal Displacements and Thermal Stresses in a Cylindrical Body of Finite Height Subject to Convective Heat Losses [71-APM-D] (*A*) . . . . . O 59
Numerical Method for Determining Stress Intensity Factors of an Interior Crack in a Finite Plate [71-Met-L] (*A*) . . . . . S 54
Phase Transformation Effects on the Bending Stress Distributions in Carburized Steel Components [71-Met-H] (*A*) . . . . . S 54
A Photoelastic Study of Stress Distribution During Orthogonal Cutting
Part 1: Workpiece Stress Distribution [70-WA/Prod-12] (*A*) . . . . . Mr 60
Part 2: Photoplasticity Observations [70-WA/Prod-13] (*A*) . . . . . Mr 60
Prediction of Loads and Stresses in Closed-Die Forging [70-WA/Prod-8] (*A*) . . . . . Mr 60
Radial Stress Release Phenomena in Plate Impact Experiments: Compression—Release [71-APMW-16] (*A*) . . . . . N 56
Reexamination of the Kolsky Technique for Measuring Dynamic Material Behavior [70-WA/APM-31] (*A*) . . . . . My 59
Relationship Between Plane-Strain Ductility and K_{Ic} for Various Steels [71-PVP-13] (*A*) . . Ag 51
Resistance of Some Standard Compressor Materials to Hydrogen Sulfide Stress-Corrosion Cracking [71-Pet-25] (*A*) . . . . . D 50
Shear Front-Lamella Structure in Large Strain Plastic Deformation Processes [71-Prod-1] (*A*) Jl 48
Shear Strength of Beryllium, Uranium, and Tungsten as a Function of Strain, Strain Rate, and Pressure [70-WA/PT-2] (*A*) . . . . . Mr 65
Short-Time, Biaxial Creep of an Aluminum Alloy with Abrupt Changes of Temperature and State of Stress [70-WA/APM-41] (*A*) . . . . . Je 47
Strain Concentration Analysis Using the Finite Element Method [71-PVP-39] (*A*) . . . . . Ag 53
A Strain Energy Comparison of Discrete Modeling for Vibrating Continuous Systems [71-Vibr-5] (*A*) . . . . . N 48
Strain Histories and Strain Distributions in a Cup Drawing Operation [70-WA/Prod-6] (*A*) Mr 59
Stress Analysis of B16.9 Tees by the Finite Element Method: A Progress Report [71-PVP-40] (*A*) . . . . . Ag 53
Stress Analysis of Composite Structures [71-DE-2] (*A*) . . . . . Jl 44
The Stress Analysis of Plates with Single and Clustered Nozzles by the Boundary Point Least Squares Method [71-PVP-20] (*A*) . . . . . Ag 52
Stress Analysis of Thin Elasto-Plastic Shells [70-WA/PVP-3] (*A*) . . . . . F 76
Stress Concentration Around a Hyperboloidal Notch Under Tension in a Transversely Isotropic Material [70-WA/APM-24] (*A*) . . . My 59
Stress Concentration in a Cylindrical Shell Containing a Circular Hole [71-PVP-9] (*A*) . . . Ag 50
Stress Distribution of a Cylindrical Shell Nonradially Attached to a Spherical Pressure Vessel [71-PVP-42] (*A*) . . . . . S 48
Stress Distributions in Some Diesel Engine Crankshafts [71-DGP-1] (*A*) . . . . . Ag 48
Stress-Intensity Factors for a Surface Crack in a Finite Solid [71-APMW-6] (*A*) . . . . . N 55
Stress Resultants and Out-of-Plane Deformation in Stiff Rings Attached to Elastic Cylinders and Subject to Concentrated Loads [70-WA/PVP-1] (*A*) . . . . . F 76
Stresses in a Pressurized Ribbed Cylindrical Shell with a Reinforced Circular Hole Interrupting a Rib [71-PVP-8] (*A*) . . . . . Ag 51
Stresses in Multilayered Structures Under High-Rate Pressure Loads [70-WA/UnT-14] (*A*) Je 46
Study of Rim Stresses Resulting from Static Loads on Different 36-Inch Railroad Wheel Designs [71-RR-4] (*A*) . . . . . S 51
Tensile Properties of Bone at High Strain Rates [70-WA/BHF-10] (*A*) . . . . . Ap 64
Thermal Stresses in an Orthotropic Elastic Semispace [71-APM-18] (*A*) . . . . . S 56
Thermal Stresses in Thick-Walled Circular Cylinders Under Axisymmetric Temperature Distribution [71-PVP-16] (*A*) . . . . . Ag 51
Thermal Stresses Near a Prolate Spheroidal Inclusion [70-WA/APM-16] (*A*) . . . . . My 58
Thermally Induced Stress Waves in a Laminated Composite [71-APM-28] (*A*) . . . . . O 58
The Torsional Shear Strength of Pyrophyllite Under Increasing Confining Stress to Approximately 70 Kilobars [70-WA/PT-3] (*A*) . . . . . Mr 65
Wave-Front Stress Relaxation in a One-Dimensional Nonlinear Inelastic Material with Temperature and Position Dependent Properties [70-WA/APM-20] (*A*) . . . . . My 58
Stretch Rotation
Multi-Generation Theorem for Spatial Four-Link Mechanisms via Uni-Axial Stretch-Rotation [70-Mech-60] (*A*) . . . . . Ja 52
Operators for the Kinematic Synthesis of Mechanisms by Stretch-Rotation Techniques [70-Mech-79] (*A*) . . . . . Ja 54
Stretching
Pure Bending, Stretching, and Twisting of Anisotropic Cylindrical Shells [71-APMW-4] (*A*) N 55
Uniaxial Stretching of the Red-Cell Membrane [70-WA/BHF-12] (*A*) . . . . . Ap 64
Strickland, Alvah T.
Underwater Lift Truck [based on 70-WA/UnT-13] My 20
The Buoyancy Transport Vehicle (BTV) [70-WA/UnT-13] (*A*) . . . . . Je 46
Stringers
The Effect of Stringer Width and Damping on the Response of Skin-Stringer Structures [71-Vibr-101] (*A*) . . . . . D 54
Strips, Stripping
Crack Propagation in a Linearly Viscoelastic Strip [71-APM-B] (*A*) . . . . . O 59
The Elastic Strip with Prescribed End Displacements [71-APMW-24] (*A*) . . . . . N 57
The Minimum Gage Problem in Thin Strip Rolling [70-Lub-24] (*A*) . . . . . Ja 45
Steady Motion of a Rigid Strip Bonded to an Elastic Half Space [70-WA/APM-56] (*A*) Je 49
Wire Stripping via Electric Arc (*BTR*) . . . . . Ag 34
Strohl, A.
On Aerodynamic Disturbances Caused by Single Hot-Wire Probes [71-APM-T] (*A*) . . . . . O 59
Stromberg, H. D.
Shear Strength of Beryllium, Uranium, and Tungsten as a Function of Strain, Strain Rate, and Pressure [70-WA/PT-2] (*A*) . . . . . Mr 65
The Torsional Shear Strength of Pyrophyllite Under Increasing Confining Stress to Approximately 70 Kilobars [70-WA/PT-3] (*A*) . . . Mr 65
Strong, A. B.
Heat and Mass Transfer in an Incompressible Turbulent Boundary Layer [71-HT-10] (*A*) O 61
Structures
See also Stresses and Strains
An Analysis Technique for Composite Structures Subject to Dynamic Loads [70-WA/APM-23] (*A*) . . . . . My 59
Application of Optimal Control Theory to Some Structural Optimization Problems [71-Vibr-66] (*A*) . . . . . N 53
Attenuation of Vibrational Amplitudes Through the Use of Multiple-Layered Damping Treatments [71-Vibr-40] (*A*) . . . . . N 51
Axial Vibration Transmission Characteristics of Shells of Revolution [71-Vibr-7] (*A*) . . . . . N 48
The Constant Strut (*NTB*) . . . . . My 46
Controlled Sinking of Large Concrete Ocean Structures [71-UnT-6] (*A*) . . . . . D 47
Controlling Structural Fatigue Through Adhesive Bonding [71-DE-27] (*A*) . . . . . Jl 47
Coupled Response of Spatial Vibratory Structures Mounted to Isotropic Plate Elements [71-Vibr-3] (*A*) . . . . . N 48
Dynamic Analysis of Structural Frames Supporting Vibrating Conveyors [71-Vibr-34] (*A*) . . N 51
Dynamic Tension Analysis of a Simple Lift System—A Computer Method [71-UnT-7] (*A*) D 47
The Effect of Stringer Width and Damping on the Response of Skin-Stringer Structures [71-Vibr-101] (*A*) . . . . . D 54
The Effective Utilization of Yield Strength [71-PVP-11] (*A*) . . . . . Ag 51
The Effects of Shear Deformation and Rotary Inertia on the Lateral Frequencies of Cantilever Beams in Bending [71-Vibr-79] (*A*) . . . . . D 52
Elastic Analysis of Condylar Structures [70-WA/BHF-1] (*A*) . . . . . Ap 62
On Elastomer Mount Design When Machine and Foundation Are Multi-Resonant Structures [71-Vibr-51] (*A*) . . . . . N 52
Evaluation of Structural Dampers Under Linear or Sinusoidal Displacement Control [71-Vibr-46] (*A*) . . . . . N 52
Forced Vibration of a Beam with Time-Dependent Boundary Condition [71-Vibr-32] (*A*) . . . . . N 50
Free Vibrational Characteristics of Pretensioned Cable Roofs [71-Vibr-4] (*A*) . . . . . N 48
Free Vibrations of a Linear Structure with Arbitrary Support Conditions [71-APM-6] (*A*) S 55
Methods of Modeling and Analyzing Viscoelastically Damped Structures [71-Vibr-36] (*A*) . . . . N 51
Microstructure Theory for a Composite Beam [71-APM-S] (*A*) . . . . . O 59
Multi-Parameter Optimization of Damped Linear Continuous Systems [71-Vibr-1] (*A*) . . . . . N 48
Multiplane Balancing of Flexible Rotors—A Method of Calculating Correction Weights [71-Vibr-52] (*A*) . . . . . N 52
Natural Frequency Determination of Long Span Floor Slabs [71-Vibr-8] (*A*) . . . . . N 48
A New Approach for Plate Vibrations: Combination of Transfer Matrix and Finite-Element Technique [71-Vibr-85] (*A*) . . . . . D 53
Noise Abatement in Industry
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Application of a Disorder Measure to Acoustical and Structural Models [70-WA/DE-1] (*A*) . . . . . F 65, Ap 55
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Multiple Excitations of Structures and Enclosures [70-WA/DE-8] (*A*) . . F 66, Ap 55
Response and Internal Noise of a Fuselage to Random Excitation [70-WA/DE-9] (*A*) F 66, Ap 55
Response of Structures to Nonhomogeneous Random Pressure Fields [70-WA/DE-11] (*A*) . . . . . F 66, Ap 56
Sound and Vibration Transmission Through Panel and Tie Beams Using Statistical Energy Analysis [70-WA/DE-2] (*A*) F 65, Ap 55
Sound Transmission Through an Elastic Enclosure Acoustically Closely Coupled to a Noise Source [70-WA/DE-12] (*A*) F 67, Ap 56
Underwater Behavior of Free-Flooded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
Vibration Response and Wave Propagation in Periodic Structures [70-WA/DE-3] (*A*) F 65, Ap 55
Nonlinear Deflection Analysis for Coupled Tubular Structures [71-DE-F] (*A*) . . . . . Jl 48
Notch-Ductility Transition of Structural Steels of Various Yield Strengths [71-PVP-19] (*A*) Ag 52
Numerical and Computer Methods in Structural Mechanics International Symposium, 1971 Preview . . . . . Jl 70
Numerical Determination of the Response of a Linear System with a Singular Mass Matrix [71-Vibr-10] (*A*) . . . . . N 48
Photoelasticity Applied to Analysis of Tubular Connections for Offshore Structures [71-Pet-27] (*A*) . . . . . D 50
Relationship Among Frequency, Amplitude, Damping and Human Awareness for Floor Vibration Due to Impact [71-Vibr-44] (*A*) N 51
On the Relationship Between Plastic Shakedown and the Repeated Loading of Creep Structures [71-APM-C] (*A*) . . . . . O 59
Resonance Response Criteria of a Damped Three-Layered Beam [71-Vibr-102] (*A*) . . . . . D 54
The Resonant Response of a Rectangular Plate with an Elastic Edge Restraint [71-Vibr-6] (*A*) N 48
Shear Front-Lamella Structure in Large Strain Plastic Deformation Processes [71-Prod-1] (*A*) Jl 48
Site Surveying for Ocean Floor Structures [71-UnT-8] (*A*) . . . . . D 47
Stress Analysis of Composite Structures [71-DE-2] (*A*) . . . . . Jl 44
Stresses in Multilayered Structures Under High-Rate Pressure Loads [70-WA/UnT-14] (*A*) Je 46
Structural Damping Using a Four Layer Sandwich [71-Vibr-20] (*A*) . . . . . N 49

Structures (*Continued*)
Using Viscoelastic Coatings to Reduce Structure-Borne Noise into a Fluid [71-Vibr-29] (*A*) . . N 50
Vibration and Dynamic Stability of an Axially Moving Belt [71-Vibr-31] (*A*) . . . . . N 50
Vibrations of Multicore Orthotropic Sandwich Plates [71-Vibr-48] (*A*) . . . . . N 52
Web-Stiffened Sandwich Structures [71-APM-8] (*A*) . . . . . S 55
Strunk, R. D.
Frequency Response of Fluid Lines with Nonlinear Boundary Conditions [70-WA/FE-6] (*A*) F 72
Transient Response of Fluid Lines Through Use of Infinite Products [70-WA/FE-22] (*A*) . . . . . F 74
Struts
Behavior of a Steep Prestressed Arch Made from a Buckled Strut [70-WA/APM-15] (*A*) . . . . My 58
The Constant Strut (*NTB*) . . . . . My 46
Stucky, D. L.
Noise Abatement in Industry
Gas Turbine Noise Abatement
On the Noise from Jet Diffusers [70-WA/GT-5] (*A*) . . . . . Ap 56
Students
Liberal Arts Students Can Benefit from Engineering Ed (*EN*) . . . . . Jl 58
Student Summer Research (*EN*) . . . . . Je 60
Studhalter, W. R.
Natural Gas Fuel Tanks for Automobiles: Safety Problems [71-PVP-62] (*A*) . . . . . S 50
Submarines and Submersibles
See Offshore Technology; Vehicles, Underwater
Subsonics
Base Heat Transfer in Two-Dimensional Subsonic Fully Separated Flows [71-HT-D] (*A*) N 58
A Criterion for the Combustion Modes in Constant Area Combustors [70-WA/Av-4] (*A*) . . F 68
A Design Method and the Performance of Two-Dimensional Turbine Cascades for High Subsonic Flow [71-GT-34] (*A*) . . . . . Jl 37
A Qualitative Study of Gas Bearings Operating at High Subsonic and Supersonic Tangential Speeds [71-APM-U] (*A*) . . . . . O 59
Some Results on the Heat Transfer Within Resonant Cavities at Subsonic and Supersonic Mach Numbers [71-FE-9] (*A*) . . . . . Ag 54
Two-Dimensional Diffuser Performance with Subsonic, Two-Phase, Air-Water Flow [71-FE-20] (*A*) . . . . . S 51
Substitute Natural Gas (SNG) Process
SNG Agreement (*OS*) . . . . . D 44
Subways
Automatic Fare Paying (*OS*) . . . . . O 52
Suchomel, Miles R. named a research associate at National Bureau of Standards, Washington, D. C. . . . . Ja 105
Suction
Flow Over an Oscillating Plate with Suction or with an Intermediate Film: Two Exact Solutions of the Navier-Stokes Equations [70-WA/APM-22] (*A*) . . . . . My 59
Pump Suction Piping Where NPSH Is Marginal [71-Pet-20] (*A*) . . . . . D 49
Suefusa, H.
Effects of Reynolds Number on Performance Characteristics of a Centrifugal Compressor [71-GT-25] (*A*) . . . . . Jl 36
Suh, Chung-Ha appointed chairman, Department of Engineering Design and Economic Evaluation at University of Colorado, Boulder F 101
Differential Displacement Matrices and the Generation of Screw Axis Surfaces in Kinematics [70-Mech-1] (*A*) . . . . . Ja 45
Suh, N. P.
Frictional Characteristics of Oxide-Treated and Untreated Tungsten-Carbide Tool [70-WA/Prod-5] (*A*) . . . . . Mr 60
Suk, J. K.
Arbitrary Mean Flow in Adverse Pressure Gradients [70-WA/FE-10] (*A*) . . . . . F 72
Sukhatme, S. P.
An Analysis of Combined Free and Forced Convection Heat Transfer from a Horizontal Circular Cylinder to a Transverse Flow [71-HT-O] (*A*) N 59
Sulfur
Elemental Sulfur Pilot Plant (*NB*) . . . . . D 66
Sulfur Dioxide
Infrared Radiation Properties of Sulfur Dioxide [70-WA/HT-4] (*A*) . . . . . Ap 58
Sulfur Oxide
Sulfur Oxide Control and Fly Ash Utilization [71-Pwr-1] (*A*) . . . . . D 51
Sulfurization
Desulfurization Know-How to Sweden (*OS*) . . F 63
Sulzer Foundries (Winterthur, Switzerland)
Reactor Recirculating Pumps (*OS*) . . . . . Mr 53
Summers-Smith, D.
Operating Experience with Filled PTFE Piston Rings [70-WA/Lub-1] (*A*) . . . . . Ap 65
Sun, C. T.
Microstructure Theory for a Composite Beam [71-APM-S] (*A*) . . . . . O 59
Theory of Laminated Plates [70-WA/APM-25] (*A*) My 59
Sundeen, E. E.
Performance Evaluation of a Gas Turbine Drive Industrial Building Cooling System [71-GT-49] (*A*) . . . . . Jl 39
Sunderland, J. E.
Freeze-Drying of Bodies Subject to Radiation Boundary Conditions [71-HT-5] (*A*) . . . . . O 61
Sununo, J. H.
The Effect of Heat Transfer on the Flow of High Temperature Glass Through Small Nozzles [70-WA/HT-12] (*A*) . . . . . Ap 59
Superconductivity
Supermagnetic Performance (*BTR*) . . . . . O 48
Supersonic Transport
Concorde Success (*OS*) . . . . . N 45
SST vs. the Rain Drop (*BTR*) . . . . . Je 34
Supersonics
Aerodynamic Approximations for Unsteady Supersonic Flow Through Ducts of Revolution [71-Vibr-23] (*A*) . . . . . N 50
Chemical Nonequilibrium in Supersonic Nozzle Flow [71-FE-8] (*A*) . . . . . Ag 54
A Criterion for the Combustion Modes in Constant Area Combustors [70-WA/Av-4] (*A*) . . . . . F 68
Development of Borsic-Aluminum Composite Fan Blades for Supersonic Turbofan Engines [71-GT-90] (*A*) . . . . . Jl 42
A Qualitative Study of Gas Bearings Operating at High Subsonic and Supersonic Tangential Speeds [71-APM-U] (*A*) . . . . . O 59
Some Results on the Heat Transfer Within Resonant Cavities at Subsonic and Supersonic Mach Numbers [71-FE-9] (*A*) . . . . . Ag 54
The Supersonic Turbine—A Design and Cascade Study [71-GT-76] (*A*) . . . . . Jl 41
Transition and Mixing in the Shear Layer Produced by Tangential Injection in Supersonic Flow [71-FE-24] (*A*) . . . . . S 51
Suppressors
Whoosh Shusher (*PB*) . . . . . Ag 40
Surana, K. S.
Design of Rotating Disks with Integral Shafts [70-WA/DE-6] (*A*) . . . . . F 66
Suresh, N.
Measurement of the Characteristic Impedance of Fluidic Lines [70-WA/Flcs-14] (*A*) . . . . . Je 44
Surfaces
A Blade Theory of an Impeller with an Arbitrary Surface of Revolution [71-GT-17] (*A*) . . . . . Jl 36
The Influence of a Free Surface on the Hydroelastic Stability of a Flat Panel [71-APM-16] (*A*) S 56
Laminar Film Condensation from a Steam-Air Mixture Undergoing Forced Flow Down a Vertical Surface [71-HT-E] (*A*) . . . . . N 58
The Plastic Flow of Surface Metal Layers [71-APM-W] (*A*) . . . . . O 60
Surfaces, Corrugated
Enhanced Evaporating Film Heat Transfer from Corrugated Surfaces [71-HT-33] (*A*) . . . . . N 57
Surfaces, Road
Endless Road (*PB*) . . . . . Je 36, 37
Tires and Roads [based on 69-Lub-20]
Credit Where Due (*C*) (*AC*) . . . . . Mr 66
Surge
Surge Waves in Stranded Springs [71-Vibr-94] (*A*) D 53
Surgery
Cryo-Immunology: Surgical Approach and Thermal Regimen for Freezing the Elements of the Male Rabbit Urogenital System [70-WA/HT-17] (*A*) . . . . . Ap 59
Surgical Equipment
Excised by Ice (*BTR*) . . . . . S 37
Surowiec, M. W.
Silencing Considerations for Large Gas Turbine Generator Sets [71-GT-26] (*A*) . . . . . Ag 45
Surveillance Programs
Use of Fracture Mechanics in Reactor Vessel Surveillance [70-WA/Met-3] (*A*) . . . . . My 52
Susey, R. L.
A Computer Simulation of Scavenging and Combustion in a Loop-Scavenged, Two-Cycle Natural Gas Engine [71-DGP-9] (*A*) . . . . . Ag 49
Suspension
Some Aspects of Gas-Solid Suspension Turbulence [71-FE-15] (*A*) . . . . . Ag 55
The Suspension Bridge: Its Aeroelastic Problems [71-Vibr-38] (*A*) . . . . . N 51
Sutherland, J. E. deceased . . . . . Je 80
Sutton, Edward W. named to newly created post of environmental control manager of FMC Corp., South Charleston, W. Va. Ag 85
Sve, C.
Indentation of an Elastic Layer by an Array of Punches Moving with Steady Velocity [70-WA/APM-30] (*A*) . . . . . Je 47
Thermally Induced Stress Waves in a Laminated Composite [71-APM-28] (*A*) . . . . . O 58
Time-Harmonic Waves Traveling Obliquely in a Periodically Laminated Medium [70-WA/APM-47] (*A*) . . . . . Je 48
Swaminathan, C.
Solar-Powered Refrigeration [based on 70-WA/Sol-5] . . . . . Je 22
Economic Aspects of Solar-Powered Absorption Refrigeration [70-WA/Sol-5] (*A*) . . . . . F 65
Swank, Lewis R.
The Job Problem (*C*) . . . . . Ja 55
Swartman, Robert K.
Solar-Powered Refrigeration [based on 70-WA/Sol-5] . . . . . Je 22
Economic Aspects of Solar-Powered Absorption Refrigeration [70-WA/Sol-5] (*A*) . . . . . F 65
Swearingen, T. B.
Internal Laminar Heat Transfer with Gas-Property Variation [71-HT-N] (*A*) . . . . . N 59
Swedging
See Explosive Swedging
Sweet, H. J.
Applications of Room Temperature Three-Dimensional Photoelastic Techniques [71-PVP-61] (*A*) S 50
Sweet, Joel
Squeeze Film Bearing for the Elimination of Oil Whip [70-Lub-8] (*A*) . . . . . Ja 42
Swenson, F. R.
Vortex Induced and Forced Switching of Two-Dimensional Jets [70-WA/Flcs-13] (*A*) . . . Je 44
Switches, Switching
Dynamic Behavior of a Switching Jet in a Model Bistable Fluidic Device [70-WA/Flcs-20] (*A*) Je 44
Electrically Switched Fluidic Valve (*NTB*) . . . N 38
"Rolling Wave" Micro Switch (*BTR*) . . . . . D 36
Safety Considerations in the Selections of Switches and Relays [71-DE-33] (*A*) . . . . . Jl 47
Vortex Induced and Forced Switching of Two-Dimensional Jets [70-WA/Flcs-13] (*A*) . . . . Je 44
Symbols
A Generalized Symbolic Notation for Mechanisms [70-Mech-19] (*A*) . . . . . Ja 47
Syner, A. L.
Application and Operation of a 3000-hp Turbo-Compressor Unit [71-GT-23] (*A*) . . . . . Ag 45
Synthane
Coal Gasification (*NB*) . . . . . N 68
Synthesis Methods
Analog and Digital Analysis and Synthesis of Oscillatory Tracks [71-Vibr-113] (*A*) . . . . . D 55
Application of Direction Cosines to Iterative Displacement Synthesis of a Locked Linkage in Space [70-Mech-78] (*A*) . . . . . Ja 53
A Computer-Oriented, Parameter-Space Approach to the Synthesis of Nonlinear Control Systems [70-WA/Aut-4] (*A*) . . . . . F 69
Dimensional Synthesis of the Spherical Double-Rocker Mechanism [70-Mech-81] (*A*) . . . . . Ja 54
Kinematic Synthesis of a Geared Five-Bar Function Generator [70-Mech-2] (*A*) . . . . . Ja 45
Kinematic Synthesis of Watt's Mechanism [70-Mech-50] (*A*) . . . . . Ja 51
The Method of Residues for the Synthesis of Coupler Curve Generating Mechanisms [70-Mech-53] (*A*) . . . . . Ja 51
Minimum Error Synthesis of Space Mechanisms for the Generation of Constrained and Unconstrained Screws [70-Mech-27] (*A*) . . . . . Ja 48
Operators for the Kinematic Synthesis of Mechanisms by Stretch-Rotation Techniques [70-Mech-79] (*A*) . . . . . Ja 54
The RSRC Mechanism—Kinematic Analysis and Synthesis of a Constrained Inversion [70-Mech-83] (*A*) . . . . . Ja 54
Spherical Linkage Synthesis Using Stereographic Projection [70-Mech-71] (*A*) . . . . . Ja 52
Synthesis by Liapunov's Direct Method [70-WA/Aut-3] (*A*) . . . . . F 69
Synthesis of a Four-Bar Linkage Adjustable for Variable Radius of Curvature of a Coupler Curve [70-Mech-80] (*A*) . . . . . Ja 54
Synthesis of a Geared N-Bar Linkage [70-Mech-24] (*A*) . . . . . Ja 48
Synthesis of Four-Link Space Mechanisms via Extension of Point-Position-Reduction Technique [70-Mech-17] (*A*) . . . . . Ja 47
Synthesis of Six-Link Mechanisms for Simultaneous Coordination of Coupler, Input, and Output Links [70-Mech-57] (*A*) . . . . . Ja 51
The Use of a Planar Mechanism Synthesis to Produce a Spherical Path Generator Linkage [70-Mech-51] (*A*) . . . . . Ja 51
Velocity and Acceleration Synthesis of Four-Bar Mechanisms by Curve Matching [70-Mech-42] (*A*) . . . . . Ja 50
Synthetic Gas
See Gases
Synthetics
Synthetic Fiber Industry (*OS*) . . . . . Ap 52

Systems
See also Automatic Control; Control Systems
Application of Gradient Search Procedures for the Identification of Unknown System Parameters from System Response Observations [71-Vibr-50] (*A*) ..... N 52
Systems, Continuous
Bounds on Motions of Some Lumped and Continuous Dynamic Systems [71-APMW-3] (*A*) N 55
A Strain Energy Comparison of Discrete Modeling for Vibrating Continuous Systems [71-Vibr-5] (*A*) N 48
Systems, Discrete-Time
Stability and Boundedness Domains of Autonomous Discrete-Time Systems [70-WA/Aut-12] (*A*) ..... F 70
Systems, Distributed Parameter
A Design Procedure for a Class of Distributed Parameter Control Systems [70-WA/Aut-6] (*A*) F 69
A Finite Element Model for Distributed Parameter Turbomotor Systems [71-Vibr-56] (*A*) N 52
Optimal Bang-Bang Control for a Class of Distributed Parameter Systems [70-WA/Aut-15] (*A*) ..... F 70
Remarks on Observability and Its Application to Nonlinear and Distributed Parameter Systems [70-WA/Aut-10] (*A*) ..... F 70
Systems, Lag
The Frequency Response of First and Second Order Lag Systems to Pulse Width Modulated Signals [70-WA/Aut-8] (*A*) ..... F 70
Systems, Linear
Calculation of Correlation Matrices for Linear Systems Subjected to Nonwhite Excitation [71-APMW-10] (*A*) ..... N 55
Numerical Determination of the Response of a Linear System with a Singular Mass Matrix [71-Vibr-10] (*A*) ..... N 48
Optimum Design of a Linear Multi-Degree-of-Freedom Shock Isolation System [71-Vibr-81] (*A*) D 52
Systems, Linear Continuous
Multi-Parameter Optimization of Damped Linear Continuous Systems [71-Vibr-1] (*A*) ..... N 48
Systems, Lumped
Bounds on Motions of Some Lumped and Continuous Dynamic Systems [71-APMW-3] (*A*) N 55
Systems, Multiport
State-Space Formulation for Bond Graph Models of Multiport Systems [70-WA/Aut-2] (*A*) ..F 69
Systems, Nonlinear
A Computer-Oriented, Parameter-Space Approach to the Synthesis of Nonlinear Control Systems [70-WA/Aut-4] (*A*) ..... F 69
Optimum Damping and Stiffness in a Nonlinear Four-Degree-of-Freedom System Subject to Shock Load [70-WA/APM-18] (*A*) ..... My 58
Remarks on Observability and Its Application to Nonlinear and Distributed Parameter Systems [70-WA/Aut-10] (*A*) ..... F 70
Systems Design
Taking the Systems Approach to Lubricating Machines [71-DE-49] (*A*) ..... Ag 47
Szender, S. R. deceased ..... D 83
Szogyen, John R. M. appointed managing director—Europe for Reliance Electric Co. N 89

T

Tabakoff, W.
Gas Turbine Blade Heat Transfer Augmentation by Impingement of Air Jets Having Various Configurations [71-GT-9] (*A*) ..... Ag 44
Taber, A. P. Babcock & Wilcox vice-president named to head company's Power Generation Div. ..... Ap 85
Taber, Walter, R., Jr. becomes chief engineer and vice-president of overall operations in the merger of Taber Engineering Co. into T. F. Hudgins & Associates, Inc. ..... Mr 84
Taborek, J.
Design and Operation of Large-Scale Process Heat-Transfer Research Plants [70-WA/HT-21] (*A*) Ap 60
Tack, Carl E. retires after 34 years at American Steel Foundries, Chicago-based operating unit of AMSTED Industries ..... Jl 74
Tafuri, J. C.
Fatigue-Crack Growth Rates and Fracture Toughness Study of Welded Aluminum Alloy 5083 [70-WA/PVP-5] (*A*) ..... F 76
Taggart, R. Duncan
Power-Plant Siting (*C*) ..... S 59
Tait, R. S. deceased ..... Je 80
Takahashi, Y.
Parameter Tuning of Linear DDC Algorithms [70-WA/Aut-16] (*A*) ..... F 70
Talbott, John A. appointed to replace Richard B. Rosenberg as Region IX Vice-President from June 1972 through June 1974 (*ECA*) N 83; Council Appoints John A. Talbott Region IX Vice-President ..... D 79
Engineering a Better Environment
3: Building a Pollution-Free Steel Plant ... Ja 25
Tallian, T. E.
Elastohydrodynamic Hertzian Contacts
Part 1 ..... N 14
Part 2 ..... D 17
Tankers
See Shipping; Vehicles, Marine
Tanks, Fuel
Natural Gas Fuel Tanks for Automobiles: Safety Problems [71-PVP-62] (*A*) ..... S 50
Tanks, Storage
Fuel Storage Tanks (*OS*) ..... F 63
Underwater Storage Tank (*OS*) ..... Mr 53
Tanks, Toilet
Fluidic Water Control for Water-Closet Tanks [70-WA/Flcs-11] (*A*) ..... Je 43
Tao, D. C.
Synthesis of a Four-Bar Linkage Adjustable for Variable Radius of Curvature of a Coupler Curve [70-Mech-80] (*A*) ..... Ja 54
Tao, L. N.
The Mixing of Two Parallel Streams of Dissimilar Fluids
Part 1: Analytical Development [70-WA/APM-37] (*A*) ..... Je 47
Tatge, R. B.
Prediction of Silencer Performance Using Transmission Line Theory [71-GT-8] (*A*) ..... Ag 44
Tathwell, James L. named president of Fluor Ocean Services, Inc., Fluor Corp.'s offshore engineering-construction subsidiary ..... Jl 74
Tau Beta Pi Association names Mancil W. Milligan Vice-President of Executive Council until 1974 ..... F 101
Tauchert, T. R.
An Experimental Study of Dispersion of Stress Waves in a Fiber-Reinforced Composite [71-APM-27] (*A*) ..... S 57
Thermal Stresses in an Orthotropic Elastic Semi-space [71-APM-18] (*A*) ..... S 56
Tawil, Moe N.
Thermal Control Systems Design for Space Station [71-Av-36] (*A*) ..... O 58
Taxation
Anti-Pollution Tax Write-Off (*NB*) ..... Ag 67
ASME Updates Legislative Policy (*Ed*) ..... Je 9
Council Policy: Guide to Society [ASME] Legislative Activities ..... Je 68
Technology for Tomorrow vs. Profit for Today [1970 Wright Lecture] ..... My 16
Technology vs. Profit (*C*) ..... Jl 52
Taylor, D. E.
Velocities of Fragments from Bursting Gas Reservoirs [71-PVP-14] (*A*) ..... Ag 51
Taylor, I.
Pump Suction Piping Where NPSH Is Marginal [71-Pet-20] (*A*) ..... D 49
Taylor, J. R.
A Fuel for Total Energy [71-GT-55] (*A*) ..... Jl 39
Taylor, K. E.
Reliability Design in Salt Water Disposal and Inspection Facilities [71-Pet-8] (*A*) ..... D 48
Taylor, Zach E. named to be in charge of manufacturing and engineering at the J. I. Case Co. plant in Sao Paulo, Brazil ..... Je 78
Taylor (J. Hall) Medal
See Honors
Taylor Vortex
Visual Observations and Torque Measurements in the Taylor Vortex Regime Between Eccentric Rotating Cylinders [70-Lub-13] (*A*) ..... Ja 43
Teachers
See TEMPUS
Technical Association of the Pulp and Paper Industry
TAPPI to Move to Georgia (*NB*) ..... O 72
Technical Digest
See Literature
Technicians
Certification Improves Technicians' Salaries (*EN*) Ja 64
Technion
See Israel Institute of Technology
Technology
ASME Goals: Basis for Action Programs
Making Technology a True Servant of Man Ap 16
Assessment—By Whom, for Whom? [70-WA/Av-5] (*A*) ..... F 68
The Crisis in Power-Plant Siting [based on 70-WA/Ener-12] ..... Je 10
Emissions (*C*) ..... D 57
Power-Plant Siting (*C*) (*AC*) Ag 57; (*C*) (*D*) S 59, D 57
Changing Emphasis in the Siting of Steam Electric Power Plants [70-WA/Ener-12] (*A*) Ap 62
Engineering a Better Environment
7: The Environment-Energy Balance: Needed Actions ..... My 33
Environment-Energy Balance (*C*) Jl 51, Ag 56
Engineering a Better Environment (*Ed*) ..... Ja 9
Engineering Water Resources for 2070 [based on 70-WA/PID-8] ..... Jl 7
Water Resources for 2070 (*C*) ..... D 56
Engineering Water Resources of the Future (*A*) [70-WA/PID-8] ..... Mr 64
Evolution and Technology in Conflict ..... Mr 18
Evolution and Technology (*C*) ..... My 60, Je 51, Jl 52, Ag 56, O 64
Growth ≠ Progress? ..... Ap 20
Growth ≠ Progress? (*C*) (*D*) Je 52, Jl 50, S 58; (*C*) (*AC*) S 58, O 64
IIT Students Probe Quality of Life in 21st Century (*EN*) ..... N 70
Legal and Moral Responsibilities of Engineers Toward Public Safety [70-WA/Av-2] (*A*) ..F 68
NASA Tech Briefs
See News
No Tuition Boiler Seminars (*EN*) ..... D 68
The Role of Private Enterprise in a Post-Industrial Society
1: Education, Technology and Business, A Case Study of Business in the Future—Problems and Opportunities (*TL*) ..... Ag 71
Slow Death of a Free Profession [70-WA/Av-1] (*A*) F 68
Starting Salaries for Tech Grads Increased (*EN*) Mr 74
Technology for Tomorrow vs. Profit for Today [1970 Wright Lecture] ..... My 16
Technology vs. Profit (*C*) ..... Jl 52
Tees
Experimental Stress Analysis of 24-in. Tees [71-PVP-28] (*A*) ..... Ag 52
Stress Analysis of B16.9 Tees by the Finite Element Method: A Progress Report [71-PVP-40] (*A*) Ag 53
Teeth
Gear Design: Dynamic Loads [based on 71-DE-1] O 29
Dynamic Loads on Gear Teeth, Design Applications [71-DE-1] (*A*) ..... Jl 44
Telephones
See also Data Systems
Liquid Wire (*BTR*) ..... Jl 28
Remote Heart Monitor (*BTR*) ..... Jl 29
Teletype
Economies of the Small Terminal Linked to a Time-Sharing Facility [71-DE-45] (*A*) ..... Ag 47
Temperature Technology
See also Cryogenics
Applications of Room Temperature Three-Dimensional Photoelastic Techniques [71-PVP-61] (*A*) ..... S 50
Calibration of Constant-Temperature Hot-Wire Anemometers at Low Velocities in Water with Variable Fluid Temperature [71-HT-9] (*A*) O 61
Cryogenic Blood Preservation [based on 70-WA/HT-20] ..... My 37
Preservation of Blood at Cryogenic Temperatures [70-WA/HT-20] (*A*) ..... Ap 60
The Effect of Strain Rate and Temperature on Yielding in Steels [71-Met-R] (*A*) ..... S 55
The Effects of Temperature and Inertia on Hydrostatic Thrust Bearing Performance [70-Lub-10] (*A*) ..... Ja 43
Elevated Temperature Properties of Maraging Steel Plates and Welds [71-Met-E] (*A*) ..Ag 48
Evaluation of Cardiac Work by Means of the Thermodilution Technique Employing the Thermocatheter [70-WA/Temp-2] (*A*) ..My 54
Experimental Fabrications of a High Strength, Low Alloy Steel by Means of Last Pass Temperature Control [71-Met-1] (*A*) ..... Ag 47
Fatigue Crack Growth in Type 316 Stainless Steel at High Temperature [71-PVP-25] (*A*) ...Ag 52
Film Boiling Transition Temperature for Tissue Cooled with Liquid Nitrogen [70-WA/HT-16] (*A*) ..... Ap 60
Fluidic Temperature Control for Liquid-Cooled Space Suits [70-WA/Flcs-19] (*A*) ..... Je 44
Free Convection from a Vertical Plate with Discontinuous Wall Temperature [71-HT-B] (*A*) N 58
Gas Flow Control Employing Temperature and Pressure Compensation [70-WA/Aut-14] (*A*) F 70
Gas Turbine Performance Under Varying Ambient Temperature [71-GT-57] (*A*) ..... Jl 39
"Heat Picture" of N. Y. Waters (*BTR*) ..... Ja 33
Heat Transfer Characteristics in Air Fluidized

Temperature Technology (*Continued*)
Solids up to 900 F [70-WA/Temp-3] (*A*) My 54
An Interferometric Technique for Temperature and Concentration Measurement for an Air-Water Interface [70-WA/Temp-1] (*A*) . . . My 54
Internal Laminar Heat Transfer with Gas-Property Variation [71-HT-N] (*A*) . . . . . N 59
Investigations of the Substitution of Isothermal Fabrication Programs for Last Pass Temperature Control Programs [71-Met-2] (*A*) . . . . Ag 48
The Prediction of Press Loads in Deep Drawing Titanium 6 Al 4V, Stainless Steel AISI 304, and Inconel X Alloys at Various Conditions of Lubrication at Elevated Temperatures [70-WA/Prod-26] (*A*) . . . . . Mr 63
Short-Time, Biaxial Creep of an Aluminum Alloy with Abrupt Changes of Temperature and State of Stress [70-WA/APM-41] (*A*) . . . . . Je 47
Surface Temperatures and Heat Fluxes Associated with the Evaporation of a Liquid Film on a Semi-Infinite Solid [71-HT-C] (*A*) . . . . . N 58
Thermal Effects in Precision Machining [based on 70-WA/Prod-25] . . . . . Jl 11
Thermal Effects in Precision Machining [70-WA/Prod-25] (*A*) . . . . . Mr 62
Velocity and Temperature Profiles in Near-Critical Nitrogen [71-HT-23] (*A*) . . . . . O 62

Tempering
Cause and Prevention of Stress-Relief Cracking in Quenched and Tempered Steel Weldments [71-PVP-3] (*A*) . . . . . Ag 49

TEMPUS (Teacher Education Master's Program for Urban Schools)
Engineers Needed to Teach (*EN*) . . . . . Je 60

Tenneco Inc.
Coming: The Offshore A-Plant (*BTR*) . . . . . D 35

Tennessee
Tennessee Water Quality Control Act of 1971 Signed . . . . . S 97

Tension
Creep of Single Crystal Nickel-Base Superalloy Tubes Under Biaxial Tension [71-APM-1] (*A*) S 55
Dynamic Tension Analysis of a Simple Lift System—A Computer Method [71-UnT-7] (*A*) D 47
Effects of Tension-Compression Cycling on Fatigue Crack Growth in High Strength Alloys [71-PVP-2] (*A*) . . . . . Ag 49
Tensile Properties of Bone at High Strain Rates [70-WA/BHF-10] (*A*) . . . . . Ap 64

Terminals
Computer Braille (*BTR*) . . . . . Ag 38
Computer Braille (*C*) . . . . . O 66
Economies of the Small Terminal Linked to a Time-Sharing Facility [71-DE-45] (*A*) . . . Ag 47
Large-Diameter Submarine Pipelines for Tanker Terminals [71-UnT-1] (*A*) . . . . . D 46
Roof-Top Heliport (*PB*) . . . . . D 42

Terminals, Cargo
Arrangement and Operation of a Bulk Material-Handling Terminal [70-WA/MH-3] (*A*) . . My 53

Terminals, Passenger
Horizontal Elevator (*BTR*) . . . . . S 43

Tesar, D.
Generalized Cycloidal Motion [70-Mech-22] (*A*) Ja 48
Link Length Bounds on the Four-Bar Chain [70-Mech-62] (*A*) . . . . . Ja 52
Multiply Separated Position Design of the Geared Five-Bar Function Generator [70-Mech-16] (*A*) Ja 47
Optimal Torque Balance for a Complex Stamping and Indexing Machine [70-Mech-82] (*A*) . . Ja 54

Tessarzik, J. M.
Flexible Rotor Balancing by the Exact Point-Speed Influence Coefficient Method [71-Vibr-91] (*A*) D 53

Testing Devices and Methods
See also Nondestructive Testing
Automobile Bumper Testing with the Liberty Mutual Crash Simulator [71-Vibr-107] (*A*) D 54
Design, Fabrication, Inspection and Testing of Multiwall Pressure Vessels [71-PVP-57] (*A*) S 50
Endless Road (*PB*) . . . . . Je 36, 37
The Laser in Aerospace (*BTR*) . . . . . My 43
Monster Makers (*PB*) . . . . . O 51
Performance Testing of Industrial Power Equipment [71-IPwr-8] (*A*) . . . . . S 54

Teumer, K. A.
Electronic Versatility for Fuel Economy in Turbine Powered Vehicles [71-GT-31] (*A*) . . . Ag 45

Textiles
See also Cloth; Fabric

Thal-Larsen, Herman
Thermal Effects in Precision Machining [based on 70-WA/Prod-25] . . . . . Jl 11
Thermal Effects in Precision Machining [70-WA/Prod-25] (*A*) . . . . . Mr 62

Thang, B. Q.
Cumulative Fatigue Damage Under Stress-Controlled Conditions [71-Met-M] (*A*) . . . . . S 54

The, J. H. L.
The Plastic Flow of Surface Metal Layers [71-APM-W] (*A*) . . . . . O 60

Thermionics
Thermionic Reactor Development [70-WA/Ener-13] (*A*) . . . . . Ap 62

Thermodynamics
See also Geothermodynamics; Manned Space Station
Cold-Machining—An Investigation of the Mechanics of Metal Cutting as Affected by the Workpiece Temperature in the Sub-Zero Range [70-WA/Prod-24] (*A*) . . . . . Mr 62
A Continuing Study in the Determination of Temperatures in Metal Cutting Using Remote Thermocouples [70-WA/Prod-23] (*A*) . . . . Mr 62
Creep Buckling of Thin-Walled Circular Cylindrical Shells Subject to Radial Pressure and Thermal Gradients [70-WA/APM-8] (*A*) . . . . . My 57
Cryo-Immunology: Surgical Approach and Thermal Regimen for Freezing the Elements of the Male Rabbit Urogenital System [70-WA/HT-17] (*A*) . . . . . Ap 59
The Effect of Heat Transfer on the Flow of High Temperature Glass Through Small Nozzles [70-WA/HT-12] (*A*) . . . . . Ap 59
Electromagneto-Thermoelastic Plane Waves in Solids with Thermal Relaxation [71-APMW-5] (*A*) . . . . . N 55

Engineering a Better Environment
1: Environmental Dangers Challenge Design Engineers [based on 70-DE-79]
Compatibility (*C*) . . . . . F 77
Conserving Water (*C*) . . . . . Ja 56
Evaluation of Cardiac Work by Means of the Thermodilution Technique Employing the Thermocatheter [70-WA/Temp-2] (*A*) . . . My 54
An Isothermal Analogy for Thermal Stress in Shells [71-PVP-18] (*A*) . . . . . Ag 51
The Kinetic and Thermal Expansion of Vapor Bubbles [71-FE-13] (*A*) . . . . . Ag 55
Local Non-Similarity Thermal Boundary-Layer Solutions [71-HT-L] (*A*) . . . . . N 59
Noise Abatement in Industry
Gas Turbine Noise Abatement
Utility Applications for Advanced Gas Turbines to Eliminate Thermal Pollution [70-WA/GT-9] (*A*) . . . . . Ap 56
Nonstationary Quasi-Static Thermal Displacements and Thermal Stresses in a Cylindrical Body of Finite Height Subject to Convective Heat Losses [71-APM-D] (*A*) . . . . . O 59
Plastic Flow at the Chip-Tool Interface During Hot Machining [70-WA/Prod-1] (*A*) . . . . . Mr 59
Power in the Year 2001
Part 2—Thermal Sea Power . . . . . O 21
A Probe Technique for Determining the Thermal Conductivity of Tissue [70-WA/HT-18] (*A*) Ap 59
Thermal Buckling and Snapping of a Circular Ring [71-DE-B] (*A*) . . . . . Jl 48
Thermal Control Optimization for Cylindrical Spacecraft [70-WA/Aut-13] (*A*) . . . . . F 70
Thermal Crack Propagation [71-Met-N] (*A*) . . S 55
Thermal Discharges—An Engineering Problem [70-WA/PID-5] (*A*) . . . . . Mr 63
Thermal Effects in Precision Machining [based on 70-WA/Prod-25] . . . . . Jl 11
Thermal Effects in Precision Machining [70-WA/Prod-25] (*A*) . . . . . Mr 62
Thermal Effects in the Free Oscillation of Gas Bubbles [70-WA/FE-11] (*A*) . . . . . F 72
Thermal Energy Requirements of Air-Conditioning Systems [70-WA/Ener-4] (*A*) . . . . . Ap 61
Thermal Stresses in an Orthotropic Elastic Semi-space [71-APM-18] (*A*) . . . . . S 56
Thermal Stresses in Thick-Walled Circular Cylinders Under Axisymmetric Temperature Distribution [71-PVP-16] (*A*) . . . . . Ag 51
Thermal Stresses Near a Prolate Spheroidal Inclusion [70-WA/APM-16] (*A*) . . . . . My 58
Thermally Induced Stress Waves in a Laminated Composite [71-APM-28] (*A*) . . . . . O 58
Thermodynamic Characteristics of Staged Mechanical Vacuum Pumps on Condenser Service [70-WA/PID-10] (*A*) . . . . . Mr 64
A Traversing-Thermocouple Technique for the Rapid Measurement of Thermal Conductivity in the Range 300 to 1200 K [70-WA/Ener-2] (*A*) Ap 60
Variational Equation of Motion for Coupled Flexure and Torsion of Bars of Thin-Walled Open Section Including Thermal Effect [70-WA/APM-51] (*A*) . . . . . Je 48

Thickness
Superheat Layer Thickness Measurements in Saturated and Subcooled Nucleate Boiling [71-HT-43] (*A*) . . . . . N 58

Thomas, E. C.
Water Management Results for a 90-Day Space Station Simulator Test [71-Av-6] (*A*) . . . . . O 55

Thomas, J.
The Coupled Bending-Bending Vibration of Pre-Twisted Tapered Blading [71-Vibr-78] (*A*) D 52
The Effects of Shear Deformation and Rotary Inertia on the Lateral Frequencies of Cantilever Beams in Bending [71-Vibr-79] (*A*) . . . . . D 52

Thomas, L. C.
Mathematical Model for Close Clearance Heat Exchangers [71-HT-32] (*A*) . . . . . O 63

Thompson, E. S. deceased . . . . . N 93

Thompson, J. Garth appointed head of mechanical engineering at Kansas State University, Manhattan, Kan. . . . . D 30

Thompson, J. R. deceased . . . . . Jl 78

Thompson, M. J. deceased . . . . . N 93

Thompson, R. A.
The Dynamic Behavior of Surface Grinding
Part 1: A Mathematical Treatment of Surface Grinding [70-WA/Prod-9] (*A*) . . . Mr 60
Part 2: Some Surface Grinding Tests [70-WA/Prod-10] (*A*) . . . . . Mr 60

Thompson, Walter L. deceased . . . . . F 106

Thomsen, E. G.
An Approach to Die Design in Extrusions [70-WA/Prod-16] (*A*) . . . . . Mr 61

Thomson, William T. elected Fellow ASME Ag 86

Thorium
Power in the Year 2001
Part 4—Rock Burning . . . . . D 27
Sea Burning . . . . . D 30

Thornley, R. H.
The Static and Dynamic Behavior of Warren Type Machine Tool Structural Elements [70-WA/Prod-7] (*A*) . . . . . Mr 60

Thorpe, J. F.
Hydro-Rotational Stability of a Slender Plate in a Rectangular Flow Channel [71-Vibr-37] (*A*) N 51

Thorsen, R. S.
Combined Conduction, Convection, and Radiation Effects in Optically Thin Tube Flow [71-HT-17] (*A*) . . . . . O 62

Thresher, R. W.
Stress-Intensity Factors for a Surface Crack in a Finite Solid [71-APMW-6] (*A*) . . . . . N 55

Throne, J. L.
Determination of the Radiation Properties of a Semi-Transparent Cylindrical Body Using the Monte Carlo Method [70-WA/HT-13] (*A*) Ap 59

Thrust
See also Bearings; Plates
Analysis of Nozzle-Thrust Misalignment (*NTB*) Mr 46
Modification of Drill Point for Reducing Thrust [71-Prod-12] (*A*) . . . . . Jl 49
Nonlinear Response of Gas-Lubricated Shrouded Rayleigh-Step Thrust Pad [71-Vibr-75] (*A*) D 52
Thrust Bearings for Power Gas Turbines [71-GT-59] (*A*) . . . . . Jl 39

Thurston, H. G. deceased . . . . . Jl 78

Thurston (Robert Henry) Lecture
See Lectures

Thyristers
Thyristor Power Systems and Their Applications [71-DE-11] (*A*) . . . . . Jl 45

Tichauer, E. R. elected chairman of biomedical engineering section of New York Academy of Medicine . . . . . O 89

Tielking, J. T.
A Modified Linear Membrane Theory for the Pressurized Toroid [70-WA/APM-49] (*A*) Je 48

Tien, C. L.
Infrared Radiation of Thin Plastic Films [70-WA/HT-15] (*A*) . . . . . Ap 59
Infrared Radiation Properties of Sulfur Dioxide [70-WA/HT-4] (*A*) . . . . . Ap 58

Tierney, Ernest T. elected executive vice-president of Society for Advancement of Management . . . . . S 97

Tilbrook, R. W.
Response of a Piped LMFBR to Primary System Pipe Rupture [71-NE-1] (*A*) . . . . . Jl 42

Tilghman, Richard H.
Environment-Energy Balance (*C*) . . . . . Ag 56

Time-Sharing Facilities
Economies of the Small Terminal Linked to a Time-Sharing Facility [71-DE-45] (*A*) . . . . Ag 47

Time Technology
Time-Harmonic Waves Traveling Obliquely in a Periodically Laminated Medium [70-WA/APM-47] (*A*) . . . . . Je 48

Timoshenko Beams
Free Vibrations of Viscoelastic Timoshenko Beams [70-WA/APM-44] (*A*) . . . . . Je 48
Timoshenko Beam Dynamics [71-APM-F] (*A*) O 60

Timoshenko Medal
See Honors

Ting, L. L.
The Effects of Temperature and Inertia on Hydrostatic Thrust Bearing Performance [70-Lub-10] (*A*) . . . . . Ja 43

Ting, T. C. T.
On the Contact Problem of a Rigid Punch Pressed on a Viscoelastic Beam [71-APMW-18] (*A*) N 56
On the Initial Speed of Elastic-Plastic Boundaries in Longitudinal Wave Propagation in a Rod [70-WA/APM-50] (*A*) Je 48
Tinsley, J. T.
Reduction of Shaking Forces in a Slider Crank Mechanism [70-Mech-73] (*A*) Ja 53
Tintori, J.
A Fuel for Total Energy [71-GT-55] (*A*) Jl 39
Tipnis, V. A.
A Study of Plunge (or Form) Machining of Low-Carbon Resulfurized Steel on a Multispindle Automatic Screw Machine
Part 1: Influence of Speed, Feed, and Ingot Variation on Diameter Increase and Surface Finish in Prolonged Machining [70-WA/Prod-18] (*A*) Mr 61
Part 2: Influence of Speed, Feed, and Duration of Cutting on Worn Tool Geometry [70-WA/Prod-19] (*A*) Mr 62
Tires
Endless Road (*PB*) Je 36, 37
Engineering a Better Environment
2: High-Speed Interurban Transportation Systems
Fast Transit Link [based on 69-WA/PID-11]
Fast Transit Link (*C*) (*D*) (*AC*) Mr 66
Tire Safety Standards (*NB*) O 73
Tires and Roads [based on 69-Lub-20]
Credit Where Due (*C*) (*AC*) Mr 66
TV First (*PB*) D 42
Used Tire Pulverizer (*BTR*) O 48
X-Ray Tire Testers (*BTR*) N 42
TIRIS (Traversing Infrared Inspection System)
The Design and Application of the Traversing Infrared Inspection System (TIRIS) [71-DE-37] (*A*) Ag 46
Tissues
Film Boiling Transition Temperature for Tissue Cooled with Liquid Nitrogen [70-WA/HT-16] (*A*) Ap 60
Hard Tissue as a Composite Material
Part 1: Bounds on the Elastic Behavior [70-WA/BHF-3] (*A*) Ap 62
A Probe Technique for Determining the Thermal Conductivity of Tissue [70-WA/HT-18] (*A*) Ap 59
Titanium
The Prediction of Press Loads in Deep Drawing Titanium 6 Al 4V, Stainless Steel AISI 304, and Inconel X Alloys at Various Conditions of Lubrication at Elevated Temperatures [70-WA/Prod-26] (*A*) Mr 63
Some Tentative Weibullian Descriptions of the Properties of Steels, Aluminums, and Titaniums [71-Vibr-64] (*A*) N 53
Titone, J. R. wins Old Guard Contest at 1970 WAM Ja 90
Tleimat, B. W.
Performance of a Rotating Flat-Disk Wiped-Film Evaporator [71-HT-37] (*A*) N 57
Tobin, J. F. deceased Je 80
Todd, D. M.
Optimization of the Gas Turbine Exhaust Heat Recovery System [71-GT-79] (*A*) Jl 41
Todd, James Mulherrin, Sr. deceased Ap 88
Tolani, S. K.
A Strain Energy Comparison of Discrete Modeling for Vibrating Continuous Systems [71-Vibr-5] (*A*) N 48
Tolerance
Calculation of Tolerance Based on a Minimum Cost Approach [71-Vibr-114] (*A*) D 55
Head Injury Tolerance for Linear Impacts by Mechanical Impedance Methods [70-WA/BHF-4] (*A*) Ap 63
Modeling Dimensions and Tolerances by Simulation [71-DE-5] (*A*) Jl 44
Results of Experiments for Determining the Influence of Blade Profile Changes and Manufacturing Tolerances on the Efficiency, the Enthalpy Drop, and the Mass Flow of Multi-Stage Axial Turbines [70-WA/GT-4] (*A*) My 56
Tolerance Analysis of Mechanisms Using PA-300: A General Probabilistic Problem Solving Language [70-Mech-44] (*A*) Ja 50
Under Her Wings (*PB*) Mr 54
Tomany, J. P.
A Survey of Nitrogen-Oxides Control Technology and the Development of a Low NO Emissions Combustor [70-WA/Pwr-2] (*A*) My 54
Tomasello, Anthony J. appointed district manager for environmental control equipment for Dravo Corp. in Tennessee, North and South Carolina, Georgia, Alabama and Florida Ap 85
Tomlinson, J. R. deceased Jl 78
Tonder, K.
The Hydrodynamic Lubrication of Rough Bearing Surfaces of Finite Width [70-Lub-7] (*A*) Ja 42
Tong, H.
Depth of Penetration During Electron Beam Welding [70-WA/HT-2] (*A*) Ap 58
Tong, L. S.
Review of Two-Phase Flow Instability [71-HT-42] (*A*) N 58
Tong, P.
Slow Particulate Viscous Flow in Channels and Tubes—Application to Biomechanics [71-APM-R] (*A*) O 59
Tonnesen, J.
Analysis and Experiments on Multi-Plane Balancing of a Flexible Rotor [71-Vibr-74] (*A*) D 52
Tools
AGMA Standards as Engineering Tools for the Rating, Design, Production, and Inspection of Gearing [71-DE-14] (*A*) Jl 46
Commercial Tool Steels via P/M Process (*BTR*) Je 33
The Computer as a Design Tool [71-DE-43] (*A*) Ag 47
Some Effects of Injecting Cutting Fluids Directly into the Chip-Tool Interface [70-WA/Prod-2] (*A*) Mr 59
Frictional Characteristics of Oxide-Treated and Untreated Tungsten-Carbide Tool [70-WA/Prod-5] (*A*) Mr 60
Infrared Spectrophotometry as a Quality Control Tool [71-DE-44] (*A*) Ag 47
Mechanics of Tool-Workpiece Engagement and Incipient Deformation in Machining of 70/30 Brass [71-Prod-4] (*A*) Jl 48
Plastic Flow at the Chip-Tool Interface During Hot Machining [70-WA/Prod-1] (*A*) Mr 59
A System of Specification of Lathe Tool Nomenclature [70-WA/Prod-22] (*A*) Mr 62
Vee-Notch Tool Cuts Specimens (*NTB*) Mr 47
Torches
Torch Highlight (*PB*) D 43
Torda, T. Paul elected Fellow ASME Mr 86
Torfason, L. E.
Hydraulically Actuated Quadraplegic Arm Appliance with Six Degrees of Freedom [70-Mech-55] (*A*) Ja 51
The Intersections of Solids Shown by Electronic Analog for Mechanism Simulation [70-Mech-6] (*A*) Ja 46
Kinematic Models of Spatial Mechanisms [70-Mech-74] (*A*) Ja 53
Optimization of Spherical Four-Bar Generators [70-Mech-46] (*A*) Ja 50
A Single Joystick Hydraulic Control System with Six Independent Simultaneous Velocity Proportional Degrees of Freedom [70-Mech-54] (*A*) Ja 51
Spherical Linkage Synthesis Using Stereographic Projection [70-Mech-71] (*A*) Ja 52
Stereoscopic Drawings Made by Analog Computer of Three Dimensional Surfaces Generated by Spatial Mechanism [70-Mech-38] (*A*) Ja 49
Torisaki, T.
Lift Jet Engine, JR100 [71-GT-75] (*A*) Jl 41
Toroid
A Modified Linear Membrane Theory for the Pressurized Toroid [70-WA/APM-49] (*A*) Je 48
Torpey, P. J.
Performance Evaluation of a 2.1-MW Gas Turbine Generator Set Using Computerized Data Acquisition [71-GT-36] (*A*) Jl 38
Torque
See also Analysis Methods
Effects of Axial Torque on Rotor Response: An Experimental Investigation [70-WA/DE-14] (*A*) F 67
Optimal Torque Balance for a Complex Stamping and Indexing Machine [70-Mech-82] (*A*) Ja 54
Transient Torsional Vibration Due to Suddenly Applied Torque [71-Vibr-99] (*A*) D 53
Visual Observations and Torque Measurements in the Taylor Vortex Regime Between Eccentric Rotating Cylinders [70-Lub-13] (*A*) Ja 43
Torsion
The Biomechanics of Torsional Fractures: The Effect of Loading on Ultimate Properties [70-WA/BHF-9] (*A*) Ap 64
Developing Composites for Torsional Damper-Spring Systems [71-DE-31] (*A*) Jl 47
A Note on the Calculation of Torsional Natural Frequencies of Branch Systems [71-Vibr-83] (*A*) N 54
Torsional Response of a Gear Train System [71-Vibr-77] (*A*) D 52
The Torsional Shear Strength of Pyrophyllite Under Increasing Confining Stress to Approximately 70 Kilobars [70-WA/PT-3] (*A*) Mr 65
Transient Torsional Vibration Due to Suddenly Applied Torque [71-Vibr-99] (*A*) D 53
Variational Equation of Motion for Coupled Flexure and Torsion of Bars of Thin-Walled Open Section Including Thermal Effect [70-WA/APM-51] (*A*) Je 48
Torvik, P. J.
The Elastic Strip with Prescribed End Displacements [71-APMW-24] (*A*) N 57
Tory, A. C.
The Hydrogen Bubble Technique of Flow Visualization: Factors Affecting Bubble Size and Buoyancy [71-FE-36] (*A*) S 53
Total Energy
See Energy
Toughness
Fatigue-Crack Growth Rates and Fracture Toughness Study of Welded Aluminum Alloy 5083 [70-WA/PVP-5] (*A*) F 76
Towers
Determination of Aerodynamic Behavior of Cantilevered Stacks and Towers of Circular Cross Section [71-Pet-36] (*A*) D 51
Developing Cooling Tower Recirculation Factors from Field Test Data [70-WA/HT-22] (*A*) Ap 60
Towers, James F. deceased Ja 107
Towle, L. C.
Shear Strength and Friction of Polymers Under High Pressure [70-WA/PT-1] (*A*) Mr 65
Towne (Henry Robinson) Lecture
See Lectures
Townsend, D. P.
Rolling-Element Fatigue and Lubrication with Fluorinated Polyethers at Cryogenic Temperatures [70-Lub-17] (*A*) Ja 44
Townsend, M.
Optimal Trajectories and Controls for Systems of Coupled Rigid Bodies [71-Vibr-82] (*A*) D 52
Tracers
Tracer Tests for Nuclear Power Plant Steam Turbines [based on 69-WA/PTC-3] Ja 15
Traces
Computation of Force Traces for the Rolamite [70-Mech-10] (*A*) Ja 46
Tracking Devices
The Design, Performance, and Some Applications of a Non-Electronic Solar Tracker [70-WA/Sol-2] (*A*) F 61
Tracks
Analog and Digital Analysis and Synthesis of Oscillatory Tracks [71-Vibr-113] (*A*) D 55
Traction
Fluid Rheological Effects in Sliding Elastohydrodynamic Point Contacts With Transient Loading
1—Film Thickness [70-Lub-21] (*A*) Ja 45
2—Traction [70-Lub-22] (*A*) Ja 45
Plasma Treatment of Railway Rails to Improve Traction [70-WA/RR-1] (*A*) Je 42
Tires and Roads [based on 69-Lub-20]
Credit Where Due (*C*) (*AC*) Mr 66
Traction Limits for Tracked Vehicles Crawling the Sea Bottom [70-WA/UnT-2] (*A*) Je 45
Two Edge-Bonded Elastic Wedges of Different Materials and Wedge Angles Under Surface Tractions [70-WA/APM-58] (*A*) Je 49
Traffic
Airport Traffic Pattern (*NB*) N 69
Roof-Top Heliport (*PB*) D 42
Training
See also Education
Air Resources Training (*EN*) O 75
The Formal Education of Mechanical Engineers O 37
Occupational Biomechanics (*EN*) O 75
The Santa Fe Railway Locomotive Simulator and Coordinated Engineer's Training Program [71-RR-3] (*A*) S 51
Selection and Training of Power Engineers [71-IPwr-2] (*A*) S 53
Ten Years' Progress in Management, 1960–1970
I: Management, An Appraisal and Overview
Education and Training for the Profession of Management 1969–1970 [70-WA/Mgt-9] (*A*) Mr 56
Turbine-Generator Operation (*NB*) N 68
Tran, Van-Vi
Digital Simulation of Nocturnal Production of a Solar Still [70-WA/Sol-6] (*A*) F 65
Tranquilla, M.
Optimum Design of a Four-Bar Linkage Whose Coupler Path Has Specified Extremes [71-Vibr-109] (*A*) D 54
Transducers
Noise Abatement in Industry
Interaction of Sound and Structures
Underwater Behavior of Free-Flooded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
Transfer
The Engineer's Knowledge: Is It Transferable from One Industry to Another? [based on 71-DE-28] O 26
Shifting from One Industry to Another; How Transferable Is the Engineer's Knowledge? [71-DE-28] (*A*) Jl 47

Transfer Matrix Method
A New Approach for Plate Vibrations: Combination of Transfer Matrix and Finite-Element Technique [71-Vibr-85] (*A*) ..... D 53
Transiency
Flow Transient Resulting from a Loss of Pumping Power in a Pressurized Water Nuclear Reactor [70-WA/NE-4] (*A*) ..... My 55
Fluid Rheological Effects in Sliding Elastohydrodynamic Point Contacts With Transient Loading
1—Film Thickness [70-Lub-21] (*A*) ..... Ja 45
2—Traction [70-Lub-22] (*A*) ..... Ja 45
Fluid Transient Conditions in Condenser Cooling Water Systems [70-WA/FE-25] (*A*) ..... F 74
Measurement of Transient Flow Velocities for Water Hammer Applications [71-FE-29] (*A*) S 52
Response Bounds for Columns with Transient Loads [70-WA/APM-32] (*A*) ..... Je 47
Stability and Transient Motion of a Vertical Three-Lobe Bearing System [71-Vibr-76] (*A*) ..... D 52
Transient Combined Conductive and Radiative Heat Transfer [71-HT-22] (*A*) ..... O 62
Transient Deformation of Slender Rods Impacting Rigid Plates [71-Vibr-93] (*A*) ..... D 53
Transient Flow Measurements with Sharp-Edged Orifices [71-FE-30] (*A*) ..... S 52
Transient Interaction of Spherical Acoustic Waves and a Spherical Elastic Shell [70-WA/APM-29] (*A*) ..... Je 46
Transient Response of a 25,000-hp Marine Gas-Turbine Engine [71-GT-61] (*A*) ..... Jl 39
Transient Response of Fluid Lines Including Frequency Modulated Inputs [70-WA/Flcs-1] (*A*) ..... Je 42
Transient Response of Fluid Lines Through Use of Infinite Products [70-WA/FE-22] (*A*) ..... F 74
Transient Torsional Vibration Due to Suddenly Applied Torque [71-Vibr-99] (*A*) ..... D 53
Transit Systems
See also Rapid Transit
Engineering a Better Environment
2: High-Speed Interurban Transportation Systems
Fast Transit Link [based on 69-WA/PID-11]
Fast Transit Link (*C*) (*D*) (*AC*) ..... Mr 66
Transit Systems, Electric-Powered
Electric Wayside Power (*NB*) ..... Je 59
Translations
International Cooperation on Translations (*TL*)
"Translations Register-Index" ..... Je 63
National Translations Center
See Crerar Library
Transmission
A Comparison of Simulated Gas Turbine Ship Handling Characteristics with Several Different Transmission Systems [71-GT-65] (*A*) ..... Jl 40
A Mathematical Programming Approach to the Design of a Transmission [71-DE-16] (*A*) ..... Jl 46
Noise Abatement in Industry
Interaction of Sound and Structures
Sound Transmission Through an Elastic Enclosure Acoustically Closely Coupled to a Noise Source [70-WA/DE-12] (*A*) F 67, Ap 56
A Note on the Calculation of Torsional Natural Frequencies of Branch Systems [71-Vibr-83] (*A*) N 54
Static Force and Torque Analysis Using 3 X 3 Screw Matrix, and Transmission Criteria for Space Mechanisms [70-Mech-18] (*A*) ..... Ja 47
Transmission of a Fluidic Signal at Intermediate Distances [70-WA/Flcs-15] (*A*) ..... Je 44
Transonics
The Computation of Transonic Flow Through Two-Dimensional Gas Turbine Cascades [71-GT-89] (*A*) ..... Jl 42
A Numerical Technique for the Calculation of Transonic Flows in Turbomachinery Cascades [71-GT-42] (*A*) ..... Jl 38
Shock Wave Behavior in Transonic Compressor Noise Generation [71-GT-7] (*A*) ..... Ag 44
Transpiration
An Experimental Study of Coolant Combustion Effects in Transpiration Cooling [71-GT-72] (*A*) Jl 40
Heat Transfer to the Transpired Turbulent Boundary Layer [71-HT-44] (*A*) ..... N 58
2750 Deg F Engine Test of a Transpiration Air-Cooled Turbine [70-WA/GT-1] (*A*) ..... My 56
TRANSPO
See Exhibits
Transportation
See also Aviation; Ground Transportation; Rapid Transit; Tires; Transit Systems; Vehicles
Automatic Fare Paying (*OS*) ..... O 52
Better Public Transportation for Aged (*NB*) D 67
Chicago Transportation Grants (*NB*) ..... O 72
Contracts for TACV (*NB*) ..... O 72
Engineering a Better Environment
4: An Engineer Looks at the Energy Dilemma F 40
The Energy Dilemma (*C*) ..... Je 50
Operation Arctic (*C*) ..... Ap 68
Horizontal Elevator (*BTR*) ..... S 43
A New Generation of Bulk Materials-Handling Systems Meets the Growing Demands of the Power, Steel, and Transportation Industries—Innovations in Compatible High-Capacity Components Enable Development of Fully Integrated High-Capacity Systems [70-WA/MH-2] (*A*) ..... My 53
New Transit Bus Designs (*NB*) ..... O 72
Personal Rapid Transit Systems
To Be Installed, Tested at TRANSPO, Washington, D. C. 1972 (*NB*) ..... N 69
Republic Airport Transportation Center at Farmingdale, N. Y.
Plan for Transportation Complex (*NB*) ..... O 73
Rocket Train (*BTR*) ..... D 40
Roof-Top Heliport (*PB*) ..... D 42
Sky-High Lifts (*OS*) ..... My 50
System Energy as a Factor in Considering Future Transportation [70-WA/Ener-8] (*A*) ..... Ap 61
Traversing Infrared Inspection System
See TIRIS
Traversing Technique
Circumferential Traversing Technique for Intra-Stage Analysis of Axial Flow Compressors [71-FE-33] (*A*) ..... S 53
Trella, T. J.
Lumped Parameter Modeling of a Nonlinear Pneumatic-Mechanical System [71-Vibr-41 (*A*) N 51
Tremblay, Paul
System Features of a Space Station Prototype Environmental/Thermal Control and Life Support System [71-Av-22] (*A*) ..... O 56
Trent-Crede Award
See Honors
Trezek, G. J.
A Probe Technique for Determining the Thermal Conductivity of Tissue [70-WA/HT-18] (*A*) Ap 59
Triamonds
Hot Ice (*PB*) ..... Mr 54, 55
Tribus, Myron joining Xerox Corp. as a senior vice-president of Business Products Group in Rochester, N. Y., and as general manager of group's new Research and Engineering Division F 101; named adjunct professor of engineering at Thayer School of Engineering associated with Dartmouth College ..... O 89
Delivers Roy V. Wright Lecture at 1970 WAM [excerpts] ..... Ja 74
Technology for Tomorrow vs. Profit for Today My 16
Tricklebank, S. B.
Electric Storage Batteries for Vehicle Propulsion [70-WA/Ener-7] (*A*) ..... Ap 62
Troiano, A. R.
Phase Transformation Effects on the Bending Stress Distributions in Carburized Steel Components [71-Met-H] (*A*) ..... S 54
Troth, Jason R. named regional sales manager by Solar Div. of International Harvester Co. for gas turbine equipment in western U. S. N 89
Trucks
An Automated Method for Evaluating Truck Design [71-Vibr-112] (*A*) ..... D 55
An Evaluation of Recent Developments in Rail Car Truck Design [71-RR-1] (*A*) ..... S 51
Photo Briefs
Four-Stage Upright; Low-Profile Electric Lift Trucks; Ready for Containerization; Side-loading Lift Truck; Swing Shift Lift Truck; Top Handling Attachment ..... Jl 32, 33
Trucks, Railway
The Hunting Behavior of Conventional Railway Trucks [70-WA/RR-2] (*A*) ..... Je 42
Trugman, Leonard A.
The Job Problem (*C*) ..... Ap 67
Truman, R. J.
12 percent Chromium Steel Disks for Industrial Gas Turbines [71-GT-39] (*A*) ..... Jl 38
Trumpler, P. R.
On the Dynamic Response of Axially Coupled Turborotors [71-Vibr-108] (*A*) ..... D 54
Trusch, R. B.
Computer Simulation of the Environmental/Thermal Control and Life-Support System for the Space Station Prototype [71-Av-34] (*A*) ..... O 58
Truxal, John G.
White House Appointee on Technology and Society (*EN*) ..... My 77
Tsai, N. T.
Analysis of Nonlinear Transient Motion of Cables Using Bond Graph Method [71-Vibr-21] (*A*) N 50
Tsai, W. T.
Pure Bending, Stretching, and Twisting of Anisotropic Cylindrical Shells [71-APMW-4] (*A*) N 55
Tsay, L. J.
Numerical Computation of Spherical Waves in Two Viscoelastic Media [71-APMW-23] (*A*) N 57
Tseng, W. Y.
Nonlinear Vibrations of a Beam under Harmonic Excitation [70-WA/APM-13] (*A*) ..... My 58
Nonlinear Vibrations of a Buckled Beam Under Harmonic Excitation [70-WA/APM-48] (*A*) Je 48
Tsuji, K.
Fabrication of NEMO Type Spherical Acrylic Capsules for Underwater Vehicles [70-WA/UnT-4] (*A*) ..... Je 45
Tsukagoshi, K.
Investigation Concerning the Fluid Flow in the Mixed-Flow Diffuser [71-GT-40] (*A*) ..... Jl 38
Tubes, Tubing
Combined Conduction, Convection, and Radiation Effects in Optically Thin Tube Flow [71-HT-17] (*A*) ..... O 62
Cooling It—or Him (*BTR*) ..... S 42
Corrosion of Heat-Exchange Tubes in a Simulated Coal-Fired MHD System [70-WA/CD-3] (*A*) Ap 64
Creep of Single Crystal Nickel-Base Superalloy Tubes Under Biaxial Tension [71-APM-1] (*A*) S 55
Developing Flow with Combined Forced-Free Convection in an Isothermal Vertical Tube [71-HT-6] (*A*) ..... O 61
Development and Application of Mechanically Enhanced Heat-Transfer Surfaces [71-HT-40] (*A*) ..... N 58
Dynamic Expansion of an Open-Ended Tube [71-Met-K] (*A*) ..... S 54
Engineering a Better Environment
2: High-Speed Interurban Transportation Systems
Fast Transit Link [based on 69-WA/PID-11]
Fast Transit Link (*C*) (*D*) (*AC*) ..... Mr 66
Enhanced-Surface Tubes (*BTR*) ..... Ag 38
Flow-Induced Instability of an Elastic Tube [71-Vibr-39] (*A*) ..... N 51
Fluctuating Lift Forces of the Karman Vortex Streets on Single Circular Cylinders and in Tube Bundles
Part 1: The Vortex Street Geometry of the Single Circular Cylinder [71-Vibr-11] (*A*) ..... N 49
Part 2: Lift Forces of Single Cylinders [71-Vibr-12] (*A*) ..... N 49
Part 3: Lift Forces in Tube Bundles [71-Vibr-13] (*A*) ..... N 48
Heat Transfer Due to Combined Free and Forced Convection in a Horizontal and Isothermal Tube [71-HT-3] (*A*) ..... O 61
Heat Transfer from Large Double-Fluted Vertical Tube Evaporators [71-HT-34] (*A*) ..... N 57
Heat-Transfer Performance of Internally Finned Tubes [71-HT-31] (*A*) ..... O 63
Interface Enhancement for Vertical Tube Evaporators: A Novel Way of Substantially Augmenting Heat and Mass Transfer [71-HT-38] (*A*) ..... N 57
Looks Impossible (*PB*) ..... F 60
Nonlinear Deflection Analysis for Coupled Tubular Structures [71-DE-F] (*A*) ..... Jl 48
Performance Characteristics of Corrugated Tubes for Vertical Tube Evaporators [71-HT-30] (*A*) O 63
Plasma Radiation Effects in Tube Arc Heating [71-HT-18] (*A*) ..... O 62
Radial Flow Measurements of Hydrogen Near Its Critical Point in a Heated Cylindrical Tube [71-HT-25] (*A*) ..... O 62
Rarefied Gas Flow Through Long Square Tubes [70-WA/PID-1] (*A*) ..... Mr 63
Slow Particulate Viscous Flow in Channels and Tubes—Application to Biomechanics [71-APM-R] (*A*) ..... O 59
270-Ton Lube Tube (*PB*) ..... Ja 38
The Two-Phase Critical Flow of One-Component Mixtures in Nozzles, Orifices, and Short Tubes [70-WA/HT-5] (*A*) ..... Ap 58
Ultrasonic Inspection of Brazed-Tube Joints (*NTB*) D 39
Unsteady Flow About a Solid Cylinder Falling Through a Viscous Fluid Contained in a Vertical Tube [70-WA/FE-9] (*A*) ..... F 72
Tubular Connections
Photoelasticity Applied to Analysis of Tubular Connections for Offshore Structures [71-Pet-27] (*A*) ..... D 50
Tucker, A. I.
Gear Design: Dynamic Loads [based on 71-DE-1] O 29
Dynamic Loads on Gear Teeth, Design Applications [71-DE-1] (*A*) ..... Jl 44
Tucker, Raymond R. deceased ..... F 106
Tufte, R. J.
Wide Heat Load Range Space Radiator Development [71-Av-5] (*A*) ..... O 55

Tufts University
Students' Machine Aids Cerebral Palsy Victims (*EN*) ..... O 74
Tungsten
Frictional Characteristics of Oxide-Treated and Untreated Tungsten-Carbide Tool [70-WA/Prod-5] (*A*) ..... Mr 60
Shear Strength of Beryllium, Uranium, and Tungsten as a Function of Strain, Strain Rate, and Pressure [70-WA/PT-2] (*A*) ..... Mr 65
Tungsten Carbide
Application of Tungsten Carbide to Oilfield Rotary Drill Bits [71-Pet-21] (*A*) ..... D 49
Tuning
Effect of Manifold Tuning on Performance of Engines [71-Vibr-104] (*A*) ..... D 54
Minimization of Mechanism Oscillations Through Flywheel Tuning [70-Mech-15] (*A*) ..... Ja 47
Parameter Tuning of Linear DDC Algorithms [70-WA/Aut-16] (*A*) ..... F 70
Tunnels
Engineering a Better Environment
11: Underground Utility Tunnels [based on 70-WA/Ener-11] ..... S 27
Underground Tunnels (*C*) ..... N 62
The Potential Use of Utility Tunnels in Urban Areas [70-WA/Ener-11] (*A*) ..... Ap 62
Turbines
Application of Holographic Techniques to Turbine Disk Vibration [71-Vibr-105] (*A*) ..... D 54
Turbines, Automotive
Turbine Passenger Car (*BTR*) ..... Mr 48
Turbines, Contrarotating
A Study of Contrarotating Turbines Based on Design Efficiency [70-WA/FE-17] (*A*) ..... F 73
Turbines, Fluorocarbon
Fluorocarbon Turbine (*OS*) ..... Ja 40
Turbine, Francis
Flow Investigation in a Francis Turbine [70-WA/FE-16] (*A*) ..... F 73
165,000-kw Francis Turbine (*OS*) ..... Ja 41
Ilha Solteira (*C*) ..... Jl 52
Turbines, Gas
See also Airfoils; Boundary Layers; Compressors; Diffusers; Engines, Gas-Turbine; Impellers; Silencers; Turbomachinery; Vehicles, Gas-Turbine
Advanced Regenerative Gas Turbine Designs for Lightweight and High Performance [71-GT-67] (*A*) ..... Jl 40
Aircraft Gas Turbine Condition Analysis Instrumentation: Its Use for the Status Diagnosis of Naval Turbine Engines [71-GT-86] (*A*) ..... Jl 41
Application of a Gas Turbine to Compressed Air Supply Requirements [71-GT-48] (*A*) ..... Ag 46
An Approximate Analysis of Gaseous Film Cooling with Constant Fluid Properties [71-GT-3] (*A*) Ag 44
ASME Panel Examines Progress and Current Needs in Gas Turbine Codes and Standards Ap 77
On the Behavior of Bladings in the Small Reynolds Number Regime [70-WA/GT-11] (*A*) ..... My 56
Cleaner Fuel Through Nitrogen Inserting [71-GT-45] (*A*) ..... Jl 38
The Combustion of Heavy Distillate Fuels in Heavy Duty Gas Turbines [71-GT-56] (*A*) Jl 39
A Comparison of Simulated Gas Turbine Ship Handling Characteristics with Several Different Transmission Systems [71-GT-65] (*A*) ..... Jl 40
The Computation of Transonic Flow Through Two-Dimensional Gas Turbine Cascades [71-GT-89] (*A*) ..... Jl 42
Cyclic Energy Demands Supplied Economically with Gas Turbines and Combined Cycle Plants [71-GT-71] (*A*) ..... Jl 40
Design and Development of a Boron-Glass-Epoxy Lightweight Composite Gear Case [71-GT-85] (*A*) ..... Jl 41
Design and Development of a 12,500-hp Gas Turbine [71-GT-19] (*A*) ..... Jl 36
Design and Operating Experiences with Gas Turbine Combined Cycle Units [71-GT-22] (*A*) Ag 45
A Design Method and the Performance of Two-Dimensional Turbine Cascades for High Subsonic Flow [71-GT-34] (*A*) ..... Jl 37
Designing Rotor Burst Protection [71-GT-70] (*A*) Jl 40
The Development of a Turbine Wheel Design Criterion Based upon Fracture Mechanics [71-GT-10] (*A*) ..... Ag 44
Discrete Frequency Noise from Lifting Fans [71-GT-12] (*A*) ..... Jl 36
Dynamic Behavior and Control of Single-Shaft Closed-Cycle Gas Turbines [71-GT-16] (*A*) Ag 45
A Dynamic Model of Gas Turbine Engine Main Combustor Instability [71-GT-73] (*A*) ..... Jl 40
The Effectiveness of Film Cooling with Three-Dimensional Slot Geometries [71-GT-11] (*A*) Jl 36
Effects of Crossflow on Impingement Heat Transfer [71-GT-1] (*A*) ..... Ag 44
Effects of Polyurethane Foam on Fuel System Contamination [71-GT-54] (*A*) ..... Jl 39
Evaluating Gas Turbines for Process Applications—Economic Guides for the Decision Maker [71-GT-50] (*A*) ..... Jl 38
Experience with Gas Turbines as Prime Movers for Underground Storage of Natural Gas [71-GT-27] (*A*) ..... Jl 36
Experimental Investigation of Methods for Improving the Dynamic Response of a Twin-Spool Turbojet Engine [71-GT-14] (*A*) ..... Jl 36
An Experimental Study of Coolant Combustion Effects in Transpiration Cooling [71-GT-72] (*A*) Jl 40
"Flying Test Cell" Evaluation and Applications [71-GT-77] (*A*) ..... Jl 41
For Gas Turbines: New Standard Rating Point O 34
A Fuel for Total Energy [71-GT-55] (*A*) ..... Jl 39
Gas Turbine Blade Heat Transfer Augmentation by Impingement of Air Jets Having Various Configurations [71-GT-9] (*A*) ..... Ag 44
Gas Turbine Generator (*OS*) ..... Ap 52
Gas-Turbine Loading Schedule for Maximum Life of the Hot Gas Path Components [70-WA/GT-2] (*A*) ..... My 56
Gas Turbine Performance Under Varying Ambient Temperature [71-GT-57] (*A*) ..... Jl 39
Gas Turbine Propulsion for High Utilization Cargo Ships [71-GT-83] (*A*) ..... Jl 41
Gas Turbine Research (*NB*) ..... O 72
Gas Turbine Testing on Naval Distillate Fuel [71-GT-32] (*A*) ..... Jl 39
Gas Turbines for Pipeline Compressor Drives in North America and Europe [71-GT-35] (*A*) Jl 38
Heavy Oil or Residual Oil—New Opportunity for the Utility Gas Turbine [71-GT-81] (*A*) ..... Jl 41
Holographic Analysis of Turbine Blades [71-GT-84] (*A*) ..... Jl 41
Inertia Welded Jet Engine Components [71-GT-33] Jl 37
The Jet Fuel Starter Goes Operational [71-GT-43] (*A*) ..... Jl 38
Joining Techniques for Fabrication of Composite Air-Cooled Turbine Blades and Vanes [71-GT-32] (*A*) ..... Jl 37
Laboratory Procedures for Evaluating High-Temperature Corrosion Resistance of Gas Turbine Alloys [70-WA/CD-2] (*A*) ..... Ap 65
Largest Ever Single Gas Turbine (*BTR*) ..... Je 29
Lift Jet Engine, JR100 [71-GT-75] (*A*) ..... Jl 41
Lightning Protection Approaches for Gas Turbine Controls [71-GT-29] (*A*) ..... Jl 37
Liquid Distributions of a Low Pressure Drop Injection System-Gas Turbine "Vaporizer" Design [71-GT-38] (*A*) ..... Ag 45
Low Cost Short Life Gas Turbine Design [71-GT-69] (*A*) ..... Jl 40
Marine Installation of a Gas Fired Turbine for Cryogenic Gas Processing [71-GT-28] (*A*) ..... Jl 36
Metal Matrix Composite Fabrication Procedures for Gas Turbine Engine Blades [71-GT-46] (*A*) Jl 38
New Gas Turbine Plant in Texas (*NB*) ..... Je 58
Noise Abatement in Industry
Gas Turbine Noise Abatement
Formation and Measurements of Nitrogen Oxides in Gas Turbines [70-WA/GT-3] (*A*) Ap 56
Future Trends in Aircraft Engine Noise Research [71-WA/GT-13] (*A*) ..... Ap 57
Noise Considerations in High Bypass Ratio Fan Engine Design [70-WA/GT-14] (*A*) Ap 57
On the Noise from Jet Diffusers [70-WA/GT-5] (*A*) ..... Ap 56
Some Results of Fan/Compressor Noise Research [70-WA/GT-12] (*A*) ..... Ap 56
Some Results of Recent Research of Fan and Jet Noise [70-WA/GT-15] (*A*) ..... Ap 57
The Sound of Gas-Turbine Installations [70-WA/GT-6] (*A*) ..... Ap 56
Utility Applications for Advanced Gas Turbines to Eliminate Thermal Pollution [70-WA/GT-9] (*A*) ..... Ap 56
Olin's Five-Year Experience in Gas Turbine Operation [71-GT-64] (*A*) ..... Jl 39
Operating Experience and New Approaches Provide Basis for Portable 3500-hp Prime Mover Package [71-GT-51] (*A*) ..... Jl 38
Optimization of the Gas Turbine Exhaust Heat Recovery System [71-GT-79] (*A*) ..... Jl 41
Performance Evaluation of a Gas Turbine Drive Industrial Building Cooling System [71-GT-49] (*A*) ..... Jl 39
Performance Evaluation of a 2.1-MW Gas Turbine Generator Set Using Computerized Data Acquisition [71-GT-36] (*A*) ..... Jl 38
The Performance of the TCS 670-B Turbine in the Closed Cycle Test Facility at Fort Belvoir, Virginia [71-GT-52] (*A*) ..... Jl 39
Reduction of Nitrogen Oxides from Gas Turbines by Steam Injection [71-GT-58] (*A*) ..... Ag 46
Results of Experiments for Determining the Influence of Blade Profile Changes and Manufacturing Tolerances on the Efficiency, the Enthalpy Drop, and the Mass Flow of Multi-Stage Axial Turbines [70-WA/GT-4] (*A*) My 56
Reverse Reduction Marine Drives for High Powered Gas Turbines [71-GT-82] (*A*) ..... Jl 41
Russia's 100 MW Gas Turbine [based on 70-GT-30] Russia's 100-MW Gas Turbine (*C*) (*D*) Ja 56; (*C*) Ap 68
Sensor for the Control of Vehicular Gas Turbine Combustors [71-GT-63] (*A*) ..... Jl 39
Seventeen Years Operating Experience with Gas Turbines in a Petrochemical Plant [71-GT-80] (*A*) ..... Jl 41
Silencing Considerations for Large Gas Turbine Generator Sets [71-GT-26] (*A*) ..... Ag 45
Single Process Plant Application of a Gas Turbine Generator with Recovery Boiler [71-GT-30] (*A*) Jl 37
The Supersonic Turbine—A Design and Cascade Study [71-GT-76] (*A*) ..... Jl 41
Thrust Bearings for Power Gas Turbines [71-GT-59] (*A*) ..... Jl 39
Transient Response of a 25,000-hp Marine Gas-Turbine Engine [71-GT-61] (*A*) ..... Jl 39
12 percent Chromium Steel Disks for Industrial Gas Turbines [71-GT-39] (*A*) ..... Jl 38
2750 Deg F Engine Test of a Transpiration Air-Cooled Turbine [70-WA/GT-1] (*A*) ..... My 56
The Two-Shaft Industrial Gas Turbine Goes to Sea—Again [71-GT-68] (*A*) ..... Jl 40
The Use of Gas Turbines in Gas Pipeline Service in Western Canada—Present and Future [71-GT-37] (*A*) ..... Jl 38
Turbines, Hydraulic
On the Influence of Water Turbine Characteristic on Stability and Response [70-WA/FE-15] (*A*) F 73
165,500-kw Francis Turbine (*OS*) ..... Ja 41
Ilha Solteira (*C*) ..... Jl 52
Small Hydraulic Turbine Drives (*NTB*) ..... F 51
Turbines, Steam
Analysis of Changes in the Performance Characteristics of Steam Turbines [70-WA/PTC-1] (*A*) ..... My 52
Tracer Tests for Nuclear Power Plant Steam Turbines [based on 69-WA/PTC-3] (*A*) ..... Ja 15
Turbojets
Experimental Investigation of Methods for Improving the Dynamic Response of a Twin-Spool Turbojet Engine [71-GT-14] (*A*) ..... Jl 36
The Wingless Turbojet (*BTR*) ..... Ap 45
Turbomachinery
Aerodynamic Development of a Radial Compressor for a 10-kw Turboalternator [70-WA/GT-7] (*A*) My 56
Application and Operation of a 3000-hp Turbo-Compressor Unit [71-GT-23] (*A*) ..... Ag 45
Design Considerations in Inertia Welding of Turbocharger and Gas Turbine Components [71-GT-21] (*A*) ..... Ag 45
Development and Testing of Techniques for Oscillating Pressure Measurements Especially Suitable for Experimental Work in Turbomachinery [71-FE-28] (*A*) ..... S 52
Development of Borsic-Aluminum Composite Fan Blades for Supersonic Turbofan Engines [71-GT-90] (*A*) ..... Jl 42
On the Dynamic Response of Axially Coupled Turborotors [71-Vibr-108] (*A*) ..... D 54
On Entropy Production in Adiabatic Flow in Turbomachines [71-FE-3] (*A*) ..... Ag 54
A Finite Element Model for Distributed Parameter Turbomotor Systems [71-Vibr-56] (*A*) ..... N 52
A Numerical Technique for the Calculation of Transonic Flows in Turbomachinery Cascades [71-GT-42] (*A*) ..... Jl 38
Some Observations on the Velocity Profiles in Fully Developed Viscous Flow in Turbomachines [70-WA/FE-24] (*A*) ..... F 74
Prediction of Performance of Radial Gas Turbines in Automotive Turbochargers [71-GT-66] (*A*) Jl 40
A Turbine-Speed, Main-Engine Fuel Pump [71-GT-24] (*A*) ..... Ag 45
Undertuned (*PB*) ..... Ap 50, 51
Turbulence
An Analysis of Axisymmetric Turbulent Flow Past a Long Cylinder [71-FE-25] (*A*) ..... S 52
Analysis of Turbulent Forced-Convection Heat Transfer to a Supercritical Fluid [71-HT-26] (*A*) O 62
Some Aspects of Gas-Solid Suspension Turbulence [71-FE-15] (*A*) ..... Ag 55
Development of Modern Turbulent-Mass Hot-Mix Plant [71-Pet-28] (*A*) ..... D 50
The Dispersion of Matter in Turbulent Pipe Flows [70-WA/FE-14] (*A*) ..... F 73

Turbulence (*Continued*)
Distribution of Mass, Velocity, and Intensity of Turbulence in a Two-Phase Turbulent Jet [70-WA/APM-45] (*A*) ..... Je 48
Drag Force Measurements of a Compressible Turbulent Boundary Layer on an Adiabatic Smooth Flat Plate [70-WA/FE-26] (*A*) .... F 74
Effect of Normal Shock on Turbulent Boundary-Layer Parameters [71-FE-16] (*A*) ..... Ag 55
An Examination of Eddy Viscosity Models for Turbulent Free Shear Flows [71-FE-17] (*A*) Ag 55
Experimental Hydrodynamics of the Accelerated Turbulent Boundary Layer With and Without Mass Injection [71-HT-F] (*A*) ..... N 58
An Explicit Scheme for the Calculation of Three-Dimensional Turbulent Boundary Layers [71-FE-19] (*A*) ..... S 51
A Family of Hodograph Models for the Crossflow Velocity Component of Three-Dimensional Turbulent Boundary Layers [71-FE-1] (*A*) Ag 54
Free-Stream Turbulence Effects on Local Heat Transfer from a Sphere [71-HT-8] (*A*) .... O 61
Heat and Mass Transfer in an Incompressible Turbulent Boundary Layer [71-HT-10] (*A*) O 61
Heat Transfer to the Transpired Turbulent Boundary Layer [71-HT-44] (*A*) ..... N 58
The Influence of Turbulence on Mass Transfer from Cylinders [70-WA/HT-3] (*A*) ..... Ap 58
Low Reynolds Number Turbulent Flow in Large Aspect Ratio Rectangular Ducts [71-FE-A] (*A*) S 53
Noise Abatement in Industry
Engine Combustion and Noise
The Influence of Turbulence and Compounding on Unburned Hydrocarbons and Nitric Oxide in the Combustion Products from Internal Combustion Engines [70-WA/DGP-2] (*A*) ..... Ap 57
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Excitation of Fluid-Loaded Rectangular Plates and Membranes by Turbulent Boundary-Layer Flow [70-WA/DE-15] (*A*) F 67, Ap 56
Rigid-Body Approximations to Turbulent Motion in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-Y] (*A*) ..... O 60
Three-Dimensional Turbulent Jet Reattachment [70-WA/Flcs-5] (*A*) ..... Je 43
Transformation of Compressible Turbulent and Laminar Boundary Layers with and without Wall Blowing [71-FE-37] (*A*) ..... S 53
The Turbulence Characteristics of Two-Dimensional Wall-Jet and Wall-Wake Flows [70-WA/APM-35] (*A*) ..... Je 47
Turbulent Boundary Layer and Heat Transfer Measurements Along a Convergent-Divergent Nozzle [71-HT-4] (*A*) ..... O 61
The Turbulent Boundary Layer with Mass Transfer and Pressure Gradient [71-APM-2] (*A*) S 55
Turbulent Flow Between Parallel Plates with Gas Property Variation [71-FE-38] (*A*) ..... S 53
Turbulent Mixing of Two Parallel Streams
Part 2: An Experimental Investigation [70-WA/APM-38] (*A*) ..... Je 47
Turkkan, N.
Lower Bound to Limit Pressure of Nozzle-to-Cylindrical Shell Attachment [71-PVP-38] (*A*) Ag 53
Turner, B. B.
Space Shuttle Orbiter Environmental Control and Life Support Systems [71-Av-15] (*A*) .. O 56
Turner, Joseph C., Jr. deceased ..... F 106
Turner, T. deceased ..... Je 80
Turning
A System of Specification of Lathe Tool Nomenclature [70-WA/Prod-22] (*A*) ..... Mr 62
Turpin, Alexander J. deceased ..... My 91
Tuschak, P. A.
Determination of the Unloading Boundary in Longitudinal Elastic-Plastic Stress Wave Propagation [71-APM-15] (*A*) ..... S 56
Twisting
Pure Bending, Stretching, and Twisting of Anisotropic Cylindrical Shells [71-APMW-4] (*A*) N 44

U

Uenishi, A.
A Design Method and the Performance of Two-Dimensional Turbine Cascades for High Subsonic Flow [71-GT-34] (*A*) ..... Jl 37
Ulcker, J. J., Jr.
A Generalized Symbolic Notation for Mechanisms [70-Mech-19] (*A*) ..... Ja 47
IMP (Integrated Mechanisms Program), A Computer-Aided Design Analysis System for Mechanisms and Linkage [71-Vibr-80] (*A*) ..... D 52
Ulbrich, Richard W.
Growth & Progress (*C*) ..... Jl 50
Ultrasonics
Ultrasonic Inspection of Brazed-Tube Joints (*NTB*) D 39
Ultrasonic Inspection of Cold Forgings (*BTR*) S 39
Ultrasonic Inspection of Fusion Butt Welds (*NTB*) Mr 47
Ultrasonic Velocity of Sound and Void Fraction in a Bubbly Mixture [71-FE-26] (*A*) ..... S 52
Umbenhauer, Milton S. elected Fellow ASME F 103
Underground Technology
Engineering a Better Environment
2: High-Speed Interurban Transportation Systems
Fast Transit Link [based on 69-WA/PID-11] Fast Transit Link (*C*) (*D*) (*AC*) ..... Mr 66
11: Underground Utility Tunnels [based on 70-WA/Ener-11] ..... S 27
Underground Tunnels (*C*) ..... N 62
The Potential Use of Utility Tunnels in Urban Areas [70-WA/Ener-11] (*A*) ..... Ap 62
Experience with Gas Turbines as Prime Movers for Underground Storage of Natural Gas [71-GT-27] (*A*) ..... Jl 36
Thermal Prospecting (*BTR*) ..... F 53
Underground Corrosion Study (*BTR*) ..... F 49
Underwater Technology
See also Environment; Marine Engineering; Offshore Technology; Seawater
Acrylic Pressure Hull for Submersible NEMO [71-UnT-2] (*A*) ..... D 46
An Analysis of Corrosion in Wire Ropes [70-WA/UnT-10] (*A*) ..... Je 46
Analyzing First Complete Geophysical Investigation
The Sea Floor (*NB*) ..... N 69
Anti-Fog Coating (*NTB*) ..... O 44
Behavioral and Stress Analysis of the NEMO Type Acrylic Hulls [70-WA/UnT-8] (*A*) .. Je 45
Controlled Sinking of Large Concrete Ocean Structures [71-UnT-6] (*A*) ..... D 47
Designing an Advanced Marine Core [based on 69-WA/UnT-13]
Marine Coring (*C*) ..... F 77
Dynamic Tension Analysis of a Simple Lift System—A Computer Method [71-UnT-7] (*A*) D 47
Dynamics of a Submerged Ring-Stiffened Spherical Shell [70-WA/APM-42] (*A*) ..... Je 47
Expanded-Sphere Sandwich Structure [70-WA/UnT-7] (*A*) ..... Je 46
Fluids for Deep Sea Applications [71-UnT-4] (*A*) D 46
Forces on Submarine Pipelines from Steady Currents [71-UnT-3] (*A*) ..... D 46
The Influence of Residual Stresses on the Collapse Pressure of Cold Pressed Spherical Shells [70-WA/UnT-1] (*A*) ..... Je 45
The "Johnson-Sea-Link"—The First Deep-Diving Welded Aluminum Submersible [70-WA/UnT-6] (*A*) ..... Je 45
Kumukahi [based on 70-WA/UnT-11] ..... Ag 9
Kumukahi [70-WA/UnT-11] (*A*) ..... Je 46
Large-Diameter Submarine Pipelines for Tanker Terminals [71-UnT-1] (*A*) ..... D 46
Noise Abatement in Industry
Interaction of Sound and Structures
Underwater Behavior of Free-Flooded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
Precision Control for Deep Ocean Work [70-WA/UnT-5] (*A*) ..... Je 45
Site Surveying for Ocean Floor Structures [71-UnT-8] (*A*) ..... D 47
Spherical Acrylic Pressure Hulls for Undersea Exploration [70-WA/UnT-3] (*A*) ..... Je 45
Submarine Pipeline (*OS*) ..... Jl 35
Traction Limits for Tracked Vehicles Crawling the Sea Bottom [70-WA/UnT-2] (*A*) ..... Je 45
Under the Deep-Sea Bed (*OS*) ..... F 63
Undersea Simulator (*OS*) ..... O 53
Undersea Forklift (*BTR*) ..... F 56
An Underwater Christmas Tree [71-Pet-40] (*A*) D 51
Underwater Lift Truck [based on 70-WA/UnT-13] My 20
The Buoyancy Transport Vehicle (BTV) [70-WA/UnT-13] (*A*) ..... Je 46
Underwater Storage Tank (*OS*) ..... Mr 53
Underwood, A. C.
Noise Abatement in Industry
Noise Abatement and Its Control in the Petroleum Industries
Machinery Noise May Indicate Loss of Efficiency and Severity of Dynamic Stresses [70-WA/Pet-2] (*A*) ..... Ap 55
Ungar, E. E.
Stress Resultants and Out-of-Plane Deformations in Stiff Rings Attached to Elastic Cylinders and Subject to Concentrated Loads [70-WA/PVP-1] (*A*) ..... F 76
Unger, M. P. deceased ..... Je 80
Unification
Identifying the Engineer
Needed: Unification of the Engineering Profession ..... Ja 20
Identifying the Engineer (*C*) ..... Mr 66, Ap 66, Je 51, Ag 57
Union of Soviet Socialist Republics
Academy of Sciences
U. S.—Soviet Scientific Agreement (*NB*) .. Je 38
United Engineering Trustees
Free World's Largest Engineering Library:
Over 200,000 Volumes on Tap at Engineering Societies Library in New York City (*NB*) Mr 69
United Nations
Development and Utilization of Geothermal Resources Symposium in Pisa, Italy
Geothermal Resources (*OS*) ..... My 51
Economic and Security Council
African Engineers Federation (*OS*) ..... Mr 52
Human Environment Conference, 1972
Preparatory Committee Hears Call to Manage Global Ocean Resources (*OS*) ..... Je 38
Peaceful Uses of Atomic Energy Conference
4th, 1971
Review (*NB*) ..... N 64
World Economic Survey
'70 World Economy Slowdown (*NB*) ..... O 72
United States
Air Force
AWACS Program
Microwave Radiator (*PB*) ..... S 44, 45
C-5 Galaxy
128-Ton Payload (*PB*) ..... Ja 38
Effects of Polyurethane Foam on Fuel System Contamination [71-GT-54] (*A*) ..... Jl 39
Materials Laboratory
Advanced Composites Efforts—A Status Report of Air Force Programs with Graphite Reinforced Composites [71-DE-13] (*A*) ..... Jl 46
Army
Corps of Engineers
The Performance of the TCS 670-B Turbine in the Closed Cycle Test Facility at Fort Belvoir, Virginia [71-GT-52] (*A*) ..... Jl 39
Research Office
Gas Turbine Research (*NB*) ..... O 72
Scientific Advisory Panel
Bruce A. Reese named member ..... F 101
Atomic Energy Commission
"A" Plant Orders Double (*BTR*) ..... Jl 27
Fast Reactor Fuel (*PB*) ..... Je 36, 37
Fast Reactor Siting and Safety (AEC Regulatory Procedures and Views) [71-NE-4] (*A*) ..... Jl 43
Nuclear Power Growth Challenges AEC Enriched Uranium Production Capacity ..... My 74
Oak Ridge Ecology Facility (*NB*) ..... Ag 67
Oak Ridge National Laboratory
Ecology Project (*NB*) ..... Mr 73
Clearinghouse for Federal Scientific and Technical Information
NASA Tech Briefs
See News
Commerce Department
Maritime Administration
Container Control System (*NB*) ..... O 73
National Oceanic and Atmospheric Administration
Analyzing First Complete Geophysical Investigation
The Sea Floor (*NB*) ..... N 69
GEOALERT Warning System (*NB*) ..... N 69
National Ocean Survey Agency
Of Dams and 'Quakes (*BTR*) ..... O 42
National Technical Information Service
Information Retrieval (*NB*) ..... O 73
Plant Engineering and Maintenance
Plant Engineering and Maintenance Technical Seminar in Southeast Asia
7th, 1971
Chairman is Herbert F. Lund ..... S 97
Committee on International Exchange of Persons
Fulbright-Hays Awards (*EN*) ..... Ja 64
Defense and Space Programs
Ten Years' Progress in Management, 1960–1970
III: General and Operations Management
Placing the Management of Defense and Space Programs in Perspective [70-WA/Mgt-3] (*A*) Mr 58
Defense Department
Advanced Research Projects Agency
Materials Science/Engineering Study (*NB*) Je 59
Environmental Protection Agency
Air Pollution Control Office (Ann Arbor)
Bright Future Predicted for Gas Turbine (*BTR*) S 37

United States (*Continued*)
Air Programs Office
Air Resources Training (*EN*) ... O 75
Anti-Pollution Tax Write-Off (*NB*) ... Ag 67
EPA Awards Grants (*NB*) ... D 67
Federal Clean Car Incentive Program
Clean-Car Contracts (*NB*) ... Ag 67
Fuel Additives (*NB*) ... Je 58
Lead Levels Up (*BTR*) ... D 35
Motor Vehicle Emissions Committee (*NB*) ... D 66
New Sources Listed for EPA Air Standards (*NB*) Je 58
Reduced Pollution Power Systems (*NB*) ... N 68
Scientific Advisory Committee
Pesticide Reports (*NB*) ... N 69
Water Programs Office
Advisory Committee Established
Committee for Water Programs (*NB*) ... N 69
Water Quality Office
Wastewater Treatment (*NB*) ... My 76
Federal Aviation Administration
Airport Traffic Pattern (*NB*) ... N 69
To Reduce Midair Collisions (*NB*) ... N 68
Federal Council on Science and Technology
Seven-Minute Solar Eclipse (*NB*) ... N 68
House of Representatives
Committee on Science and Astronautics
National Science Foundation
Engineering Research (*NB*) ... My 76
Housing and Urban Development Department
Denver Mass Transit Plan (*NB*) ... Ag 67
Industrial Economy: Outlook—1971
Growth in Sight Following Last Year's Sag—Lessening of Inflation (*NR*) ... F 83
Interior Department
Bureau of Mines
Coal-to-Gas Research
Coal Gasification (*NB*) ... N 68
Gas from Coal Essential (*NB*) ... N 68
Saline Water Office
Water Desalination Module (*NR*) ... Mr 70
International Transportation Exposition (TRANSPO)
Personal Rapid Transit Systems
To Be Installed, Tested at TRANSPO, Washington, D. C., 1972 (*NB*) ... N 69
Labor Department
Engineer Immigration Halted (*NB*) ... Ap 72
Labor Department Registry (*NB*) ... Ja 63
Labor Statistics Bureau
Long Term Outlook Is Good (*EN*) ... Je 60
Manpower Administration
Registry Information Available for Engineer Job Seekers ... F 95
NSPE Recommends Plan for Administering Fund for Unemployed Engineers ... Je 56
Employment Practices (*C*) ... O 65
Technology Mobilization and Reemployment Program
Presidential Internships [in Science and Engineering to be funded] (*EN*) ... D 68
United Attack Underway on Engineering Unemployment ... Jl 63
Employment Practices (*C*) ... O 64
Legislation
Insecticide, Fungicide, and Rodenticide Act
Pesticide Reports (*NB*) ... N 69
National Academy of Engineering reelects Clarence H. Linder full-time president for 3 years O 90; members of National Academy of Engineering from ASME: Michael Ference, Jr.; John Dickson Harper; John Erik Jonsson; Joseph Francis Shea ... Je 77
Power Plant Siting
Forum, 1971
Review ... My 73
Workshop on Quality, Performance, and Cost (*EN*) ... Ap 73
National Academy of Sciences
Committee on the Survey of Materials Science and Engineering (COSMAT)
Materials Science/Engineering Study (*NB*) Je 59
Motor Vehicle Emissions Committee (*NB*) D 66
National Aeronautics and Space Administration
Ames
Oxygen for Astronauts (*NB*) ... O 73
Arecibo Radar Gets Boost (*NB*) ... O 73
Cosmic
Computer Programs Exchange (*NB*) ... O 73
Gas Turbine Research (*NB*) ... O 72
NASA Tech Briefs
See News
U. S.–Soviet Scientific Agreement (*NB*) ... Je 58
National Astronomy and Ionosphere Center
Arecibo Radar Gets Boost (*NB*) ... O 73
National Bureau of Standards
Underground Corrosion Study (*BTR*) ... F 49
National Commission of Libraries and Information Science
Established in 1970 to develop and recommend overall plans for the most effective use of the nation's educational resources
First appointees to commission include Martin Goland ... S 97
National Council of Engineering Examiners
State Engineering Laws and Board Rules (*TL*)
"Synopsis of State Engineering Registration Laws and Policies and Procedures of State Boards" ... Je 63
National Science Foundation
Arecibo Radar Gets Boost (*NB*) ... O 73
Computing Networks (*NB*) ... D 66
Ecology Project (*NB*) ... Mr 73
Ei Awarded NSF Grant (*NB*) ... Ja 63
Engineering Research (*NB*) ... My 76
Grants Offered for Summer Fluid Dynamics Institute (*EN*) ... Mr 74
Joint Information Project [with Yugoslavia] (*NB*) D 67
Materials Research [Division Established] (*NB*) D 67
Materials Science/Engineering Study (*NB*) ... Je 59
Presidential Internships [in Science and Engineering to be admfiistered] (*EN*) ... D 68
Seven-Minute Solar Eclipse (*NB*) ... N 68
Undergraduate Research Participation
Student Summer Research (*EN*) ... Je 60
National Translations Center
See Crerar Library
Navy
Aircraft Gas Turbine Condition Analysis Instrumentation: Its Use for the Status Diagnosis of Naval Turbine Engines [71-GT-86] (*A*) ... Jl 41
Naval Research Office
Mechanical Failure Prevention Group
MFPG Tackles Failures (*NB*) ... Ja 62
Structural Mechanics Program
Numerical and Computer Methods in Structural Mechanics International Symposium, 1971
Preview ... Jl 70
Naval Ship Engineering Center
Gas Turbine Testing on Naval Distillate Fuel [71-GT-62] (*A*) ... Jl 39
Naval Ship Research and Development Laboratory
Transient Response of a 25,000-hp Marine Gas-Turbine Engine [71-GT-61] (*A*) ... Jl 39
Navy grants Meritorious Civilian Service Award to
Danos H. Kallas ... Ag 85
Harold V. Nutt ... F 101
Pollution Control Center
Pollution Control Center (*NB*) ... O 73
Post Office Department
Postal Vehicles
Combatting Pollution (*NB*) ... Mr 73
Postal Services
Administrative Post Appointee is Harry J. Eirmann My 88
President
Science Advisory Committee
White House Appointee on Technology and Society (*EN*) ... My 77
Science and Technology Office
Presidential Internships [in Science and Engineering] (*EN*) ... D 68
Public Health Services
Bureau of Occupational Health
Occupational Biomechanics (*EN*) ... O 75
National Cancer Institute
Blood Pressure via the Ear (*BTR*) ... N 37
Solid Waste Disposal (*NB*) ... My 76
Senate
Committees
Interior
Coal-to-Gas Research
Coal Gasification (*NB*) ... N 68
Gas from Coal Essential (*NB*) ... N 68
Transportation Department
Better Public Transportation for Aged (*NB*) D 67
Contract for Improved Crashworthiness (*NB*) N 69
Crash Tests (*NB*) ... N 69
Electric Wayside Power (*NB*) ... Je 59
Federal Highway Administration
Denver Mass Transit Plan (*NB*) ... Ag 67
Motor Carrier Safety Bureau
Seat Belts and Safety (*BTR*) ... D 37
New High for Motor Vehicle Registrations (*NB*) D 66
Magnetic Levitation (*NB*) ... Je 59
National Highway Traffic Safety Administration
Auto Safety Testing (*NB*) ... Ag 67
Tire Safety Standards (*NB*) ... O 73
Reduced Pollution Power Systems (*NB*) ... N 68
Urban Mass Transportation Administration
Chicago Transportation Grants (*NB*) ... O 72
Contracts for TACV (*NB*) ... O 72
Denver Mass Transit Plan (*NB*) ... Ag 67
$40 Million for S. F. Rapid Transit (*NB*) ... Je 59
New Transit Bus Designs (*NB*) ... O 72
Urban Rapid Rail Vehicle and Systems Program
Rapid Transit Car Design Contract (*NB*) Ag 67
Treasury Department
Anti-Pollution Tax Write-Off (*NB*) ... Ag 67
U. S. Steel
The Steel Triangle (*NB*) ... D 66
Roof-Top Heliport (*PB*) ... D 42
UNIVAC
"Adaptive Architecture" (*BTR*) ... F 54
Universities
Ten Years' Progress in Management, 1960–1970
IV: Management Education
Continuing Management Education in the Universities [70-WA/Mgt-6] (*A*) ... Mr 58
Universities Join to Fight Air Pollution (*EN*) Jl 58
University of California at Los Angeles Establishes interdisciplinary doctoral program in environmental science and engineering (*EN*) D 69
University of Cincinnati merges Engineering Graphics Department with Engineering Analysis Program unit to form degree-granting Department of Engineering Analysis (*EB*) My 77
Distinguished Engineering Alumnus Awards go to Robert M. Goldhoff and Warner L. Stewart Je 78
Fetal Monitor (*BTR*) ... Jl 26
Gas Turbine Research (*NB*) ... O 72
PhD Degree in Biomedical Engineering (*EN*) Mr 74
University of Colorado
Distinguished Alumnus Achievement Award goes to Glenn Murphy ... Jl 74
Distinguished Engineering Alumnus Achievement Awards of University of Colorado Engineering Development Council go to Glenn Murphy and Marcellus S. Merrill ... Je 78
University of Georgia
COSMIC
Computer Programs Exchange (*NB*) ... O 73
University of Illinois
College of Engineering
7th Annual Alumni Honor Awards for Distinguished Service
Recipients include Ralph G. Nevins ... Ag 85
University of Missouri—Rolla
The Sky Above the Noise Below (*EN*) ... Je 60
University of Pennsylvania establishes interdisciplinary graduate program in energy management and power (*EN*) ... D 69
National Center for Energy Management and Power
"Off-Peak" Air Conditioning (*BTR*) ... N 42
University of Rochester
University Gets Laser Lab (*EN*) ... Mr 74
University of Wisconsin awarded NSF Grant to continue Marine Science Research Program (*EN*) ... Mr 74
Nuclear Engineering Department
Nuclear Fusion Research (*EN*) ... N 70
Unny, T. E.
The Influence of a Free Surface on the Hydroelastic Stability of a Flat Panel [71-APM-16] (*A*) S 56
Variational Method for a Pseudoplastic Fluid in a Laminar Boundary Layer over a Flat Plate [70-WA/APM-39] (*A*) ... Je 47
Unruh, D.
Computer Aided Mathematical Analysis of Fluid Power Systems [71-DE-29] (*A*) ... Jl 47
Untermyer, Samuel, II elected Fellow ASME N 91
Updike, D. P.
Axisymmetric Postbuckling and Nonsymmetric Buckling of a Spherical Shell Compressed Between Rigid Plates [71-APMW-7] (*A*) ... N 55
Limit Analysis for Combined Edge and Pressure Loading on a Cylindrical Shell [71-PVP-22] (*A*) Ag 52
Uranium
Nuclear Power Growth Challenges AEC Enriched Uranium Production Capacity ... My 74
Power in the Year 2001
Part 4—Rock Burning ... D 27
Sea Burning ... D 30
Shear Strength of Beryllium, Uranium, and Tungsten as a Function of Strain, Strain Rate, and Pressure [70-WA/PT-2] (*A*) ... Mr 65
Urban Technology
Engineering a Better Envrionment
11: Underground Utility Tunnels [based on 70-WA/Ener-11] ... S 27
Underground Tunnels (*C*) ... N 62
The Potential Use of Utility Tunnels in Urban Areas [70-WA/Ener-11] (*A*) ... Ap 62
Personal Rapid Transit Systems
To Be Installed, Tested at TRANSPO, Washington, D. C. 1972 (*NB*) ... N 69
Urban Tech Conference (1971) Attacks Problems of Dying Cities from Lunar Modules to Earth Modules ... Jl 55

Urwick, L. F.
Ten Years' Progress in Management, 1960–1970
1: Management, An Appraisal and Overview
Education and Training for the Profession of Management 1960–1970 [70-WA/Mgt-9] (*A*) Mr 56

Utilidors
Engineering a Better Environment
11: Underground Utility Tunnels [based on 70-WA/Ener-11] ..... S 27
Underground Tunnels (*C*) ..... N 62
The Potential Use of Utility Tunnels in Urban Areas [70-WA/Ener-11] (*A*) ..... Ap 62

Utility Districts
Rancho SECO Quality Assurance Program [70-WA/NE-1] (*A*) ..... My 55

V

Vachon, Reginald I. chairman of long range planning committee on American Society for Engineering Education 1971–1972 board of directors ..... N 89

Vacuum
Air Bearings for High-Speed Mirrors Rotating in a Vacuum [70-Lub-15] (*A*) ..... Ja 43
Ultra-High Vacuum Chamber (*NTB*) ..... My 46

Vaidyanathan, S.
Determination of Residual Stresses from Stress Intensity Factor Measurements [71-Met-A] (*A*) Ag 47

Vaillancourt, D. R.
Automobile Bumper Testing with the Liberty Mutual Crash Simulator [71-Vibr-107] (*A*) ..D 54

Valentine, M. B.
Transient Deformation of Slender Rods Impacting Rigid Plates [71-Vibr-93] (*A*) ..... D 53

Value
Ball Bearings: Cost vs. Value [based on 70-DE-48] Mr 20

Valves
Boiler and Pressure Vessel Code of ASME
Section III, 1971 edition, becomes Reference Code for Draft Code for Nuclear Pumps and Valves ..... S 90
Electrically Switched Fluidic Valve (*NTB*) ..N 38
A Fluidic Fuel Control Valve for Turbine Engines [71-GT-44] (*A*) ..... Ag 45
Hydraulic Brake Safety Valve (*NTB*) ..... Ja 35
Low-Noise Flow Valve (*NTB*) ..... O 45
On the Prediction of Aerodynamically Created Sound Pressure Level of Control Valves [70-WA/FE-28] (*A*) ..... F 74
An Underwater Christmas Tree [71-Pet-40] (*A*) D 51

Vanadium
The Effects of Vanadium in High Strength Low Alloy Steels [71-Pet-5] (*A*) ..... D 47

Van Buskirk, G. L. deceased ..... Jl 78

Van De Vegte, J.
The Wave Reflection Matrix in Beam Vibration Control [70-WA/Aut-1] (*A*) ..... F 69

Vanek, Roy F. named director of marketing by Stanley Consultants, Inc. ..... Jl 74

Vanes
An Analysis of Vane-in-Rotor Pump [70-WA/FE-21] (*A*) ..... F 74
Joining Techniques for Fabrication of Composite Air-Cooled Turbine Blades and Vanes [71-GT-32] (*A*) ..... Jl 37
Optimum Vane Number and Angle of Centrifugal Pumps with Logarithmic Vanes [70-WA/FE-20] (*A*) ..... F 74

Van Fossen, D. B.
Combined Elastic-Plastic-Creep Analysis of Two-Dimensional Bodies [71-PVP-30] (*A*) ..... Ag 52

Vanyo, J. P.
Measurement of Energy Dissipation in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-4] (*A*) ..... S 55
Rigid-Body Approximations to Turbulent Motion in a Liquid-Filled, Precessing, Spherical Cavity [71-APM-Y] (*A*) ..... O 60

Vapor, Vaporization, Vaporizers
The Kinetic and Thermal Expansion of Vapor Bubbles [71-FE-13] (*A*) ..... Ag 55
Liquid Distributions of a Low Pressure Drop Injection System-Gas Turbine "Vaporizer" Design [71-GT-38] (*A*) ..... Ag 45
Liquid-Vapor Interactions in a Constant-Area Condensing Ejector [71-FE-21] (*A*) ..... S 52
The Use and Applications of Subatmospheric Pressures in Sterilization Processes—Vapor-Phase Sterilization [70-WA/PID-13] (*A*) Mr 64
Vaporization from Capillary Wick Structures [71-HT-35] (*A*) ..... O 63

Varian 620/i and 620/85
"Voiceprint" Identification (*BTR*) ..... Ja 31

Varma, Ashok
Synthesis of Six-Link Mechanisms for Simultaneous Coordination of Coupler, Input, and Output Links [70-Mech-57] (*A*) ..... Ja 51

Vasalos, I. A.
Experimental and Theoretical Study of Absorption in an Anisotropically Scattering Medium [71-HT-20] (*A*) ..... O 62

Vaughan, R. L.
Water Reclamation from Urine by Electrolysis-Electrodialysis [71-Av-11] (*A*) ..... O 55

Vectors
A Generalized Formulation of the Vectorial Equations of Motion for Nonprismatic Thin Space Beams [71-APM-P] (*A*) ..... O 59

Vehicle Suspension
Magnetic Levitation (*NB*) ..... Je 59

Vehicles, Air and Aviation
Aircraft Gas Turbine Condition Analysis Instrumentation: Its Use for the Status Diagnosis of Naval Turbine Engines [71-GT-86] (*A*) ... Jl 41
Bearing Up with the 747 (*BTR*) ..... Ja 32
C-5 Galaxy
128-Ton Payload (*PB*) ..... Ja 38
Design Optimization Using Computer Techniques [based on 70-DE-41] ..... Ja 22
Standard Measurement of Aircraft Gas Turbine Engine Exhaust Smoke [71-GT-88] (*A*) ... Jl 42
Tip-Top Service (*PB*) ..... S 44, 45

Vehicles, Air-Cushioned
Contracts for TACV (*NB*) ..... O 72
Electric Wayside Power (*NB*) ..... Je 59
Sky-High Lifts (*OS*) ..... My 50

Vehicles, Buoyancy Transport
Undersea Forklift (*BTR*) ..... F 56
Underwater Lift Truck [based on 70-WA/UnT-13] My 20
The Buoyancy Transport Vehicle (BTV) [70-WA/UnT-13] (*A*) ..... Je 46

Vehicles, Electric
Electric Auto Battery (*OS*) ..... F 63
The Electric Car—Solution to Pollution? (*BTR*) Je 32
The Gas Turbine (*C*) ..... Ag 56

Vehicles, Experimental Safety
Contract for Improved Crashworthiness (*NB*) N 69
Crash Tests (*NB*) ..... N 69

Vehicles, Gas-Turbine
Electronic Versatility for Fuel Economy in Turbine Powered Vehicles [71-GT-31] (*A*) ..... Ag 45

Engineering a Better Environment
8: Auto Pollution Solution: The Gas Turbine? [based on 70-WA/GT-8] ..... Je 25
The Gas Turbine (*C*) ..... Ag 56, S 59
The Potential of the Gas-Turbine Vehicle in Alleviating Air Pollution [70-WA/GT-8] (*A*) ..... My 56
Sensor for the Control of Vehicular Gas Turbine Combustors [71-GT-63] (*A*) ..... Jl 39

Vehicles, Lunar Roving
Lunar Dead Reckoning (*BTR*) ..... Jl 25
Rover Trainer (*BTR*) ..... Ap 48

Vehicles, Marine
A Comparison of Simulated Gas Turbine Ship Handling Characteristics with Several Different Transmission Systems [71-GT-65] (*A*) ..... Jl 40
Gas Turbine Propulsion for High Utilization Cargo Ships [71-GT-83] (*A*) ..... Jl 41
The Two-Shaft Industrial Gas Turbine Goes to Sea—Again [71-GT-68] (*A*) ..... Jl 40

Vehicles, Module-Carrying
Rocket Train (*BTR*) ..... D 40

Vehicles, Motor
The Abandoned Car (*NB*) ..... Mr 72
Air Pollution Control Office (Ann Arbor)
Bright Future Predicted for Gas Turbine (*BTR*) S 37
Anti-Skid System (*BTR*) ..... O 49
Electric Storage Batteries for Vehicle Propulsion [70-WA/Ener-7] (*A*) ..... Ap 62
Federal Clean Car Incentive Program
Clean-Car Contracts (*NB*) ..... Ag 67
Fuel Additives (*NB*) ..... Je 58
More Aluminum in Cars (*OS*) ..... Ag 42
Motor Vehicle Emissions Committee (*NB*) .. D 66
National Highway Traffic Safety Administration
Auto Safety Testing (*NB*) ..... Ag 67
Natural Gas Fuel Tanks for Automobiles: Safety Problems [71-PVP-62] (*A*) ..... S 50
New High for Motor Vehicle Registrations (*NB*) D 66
Prediction of Performance of Radial Gas Turbines in Automotive Turbochargers [71-GT-66] (*A*) Jl 40
To End Auto Pollution (*NB*) ..... Mr 72
Turbine Passenger Car (*BTR*) ..... Mr 48

Vehicles, Postal
Combatting Pollution (*NB*) ..... Mr 73

Vehicles, Racing
Victory Seal (*BTR*) ..... Ja 33

Vehicles, Space
See also Manned Space Station
Foamy Fun House? (*PB*) ..... N 46, 47
Space Shuttle Study (*NB*) ..... Mr 72
Thermal Control Optimization for Cylindrical Spacecraft [70-WA/Aut-13] (*A*) ..... F 70

Vehicles, Tracked
Traction Limits for Tracked Vehicles Crawling the Sea Bottom [70-WA/UnT-2] (*A*) ..... Je 45

Vehicles, Tracked Air-Cushion
Contracts for TACV (*NB*) ..... O 72
Electric Wayside Power (*NB*) ..... Je 59

Vehicles, Transit
New Transit Bus Designs (*NB*) ..... O 72

Vehicles, Underwater
Acrylic Pressure Hull for Submersible NEMO [71-UnT-2] (*A*) ..... D 46
Behavioral and Stress Analysis of the NEMO Type Acrylic Hulls [70-WA/UnT-8] (*A*) ..... Je 45
Buckling of Vessels Composed of Combinations of Cylindrical and Spherical Shells [70-WA/APM-19] (*A*) ..... My 58
Fabrication of NEMO Type Spherical Acrylic Capsules for Underwater Vehicles [70-WA/UnT-4] (*A*) ..... Je 45
Forces on Submarine Pipelines from Steady Currents [71-UnT-3] (*A*) ..... D 46
The "Johnson-Sea-Link"—The First Deep-Diving Welded Aluminum Submersible [70-WA/UnT-6] (*A*) ..... Je 45
Kumukahi [based on 70-WA/UnT-11] ..... Ag 9
Kumukahi [70-WA/UnT-11] (*A*) ..... Je 46
Large-Diameter Submarine Pipelines for Tanker Terminals [71-UnT-1] (*A*) ..... D 46
Plastic Sub (*BTR*) ..... D 36
Precision Control for Deep Ocean Work [70-WA/UnT-5] (*A*) ..... Je 45
Spherical Acrylic Pressure Hulls for Undersea Exploration [70-WA/UnT-3] (*A*) ..... Je 45
Submarine Pipelines (*OS*) ..... Jl 35
Traction Limits for Tracked Vehicles Crawling the Sea Bottom [70-WA/UnT-2] (*A*) ..... Je 45
Underwater Lift Truck [based on 70-WA/UnT-13] My 20
The Buoyancy Transport Vehicle (BTV) [70-WA/UnT-13] (*A*) ..... Je 46

Vehicles, Urban
1972 Urban Vehicle Design Competition (UVDC) Is Underway (*NR*) ..... D 64

Velkoff, H. R.
Evaluating the Interactions of Electrostatic Fields with Fluid Flows [71-DE-41] (*A*) ..... Ag 46

Velocity Technology
Arbitrary Mean Flow in Adverse Pressure Gradients [70-WA/FE-10] (*A*) ..... F 72
Calibration of Constant-Temperature Hot-Wire Anemometers at Low Velocities in Water with Variable Fluid Temperature [71-HT-9] (*A*) O 61
Distribution of Mass, Velocity, and Intensity of Turbulence in a Two-Phase Turbulent Jet [70-WA/APM-45] (*A*) ..... Je 48

Engineering a Better Environment
2: High-Speed Interurban Transportation Systems
Fast Transit Link [based on 69-WA/PID-11]
Fast Transit Link (*C*) (*D*) (*AC*) ..... Mr 66
A Family of Hodograph Models for the Crossflow Velocity Component of Three-Dimensional Turbulent Boundary Layers [71-FE-1] (*A*) Ag 54
Indentation of an Elastic Layer by an Array of Punches Moving with Steady Velocity [70-WA/APM-30] (*A*) ..... Je 47
Laser Doppler Measures Fluid Velocity (*NTB*) Ag 37
Light Gas Gun for Powder Compaction [based on 70-WA/PT-4] ..... Je 18
Laboratory-Size Light Gas Gun—Design and Operation [70-WA/PT-4] (*A*) ..... Mr 65
Measurement of Transient Flow Velocities for Water Hammer Applications [71-FE-29] (*A*) S 52
Some Observations on the Velocity Profiles in Fully Developed Viscous Flow in Turbomachines [70-WA/FE-24] (*A*) ..... F 74
A Single Joystick Hydraulic Control System with Six Independent Simultaneous Velocity Proportional Degrees of Freedom [70-Mech-54] (*A*) Ja 51
Skin Friction Drag Velocity Profile Measurement Techniques in Two-Phase Flow [71-FE-32] (*A*) S 52
Split Laser Beam (*PB*) ..... Je 36
Ultrasonic Velocity of Sound and Void Fraction in a Bubbly Mixture [71-FE-26] (*A*) ..... S 52
Unbalance Response of an Elastic Rotor in Damped Flexible Bearings at Supercritical Speeds [70-WA/Pwr-3] (*A*) ..... My 55
Velocities of Fragments from Bursting Gas Reservoirs [71-PVP-14] (*A*) ..... Ag 51
Velocity and Acceleration Synthesis of Four-Bar Mechanisms by Curve Matching [70-Mech-42] (*A*) ..... Ja 50

Velocity Technology (*Continued*)
Velocity and Temperature Profiles in Near-Critical Nitrogen [71-HT-23] (*A*) ..... O 62
Velocity Distribution in the Liquid Film During Draining on a Cylindrical Surface [71-APM-J] (*A*) ..... O 60
Veltrop, Jan A. elected a vice-president of Harza Engineering Co., Chicago consulting firm he serves as Civil Design Branch head N 89

Ventricles
Analysis and Physiological Monitoring of the Human Left Ventricle [70-WA/BHF-14] (*A*) Ap 63

Venturi
Two-Phase, Two-Component Critical Flow in a Venturi [71-FE-4] (*A*) ..... Ag 54

Verma, P. P.
The Use of a Planar Mechanism Synthesis to Produce a Spherical Path Generator Linkage [70-Mech-51] (*A*) ..... Ja 51

Verma, S. P.
ASME Employment Aids (*C*) ..... My 60

Vermes, Geza
Heavy Oil or Residual Oil—New Opportunity for the Utility Gas Turbine [71-GT-81] (*A*) ... Jl 41

Vermont
Engineering societies of Vermont choose John O. Outwater "Engineer of the Year" for 1970 Ap 85

Versatran
Robot Forges Ahead (*BTR*) ..... Je 35

Vertical Take Off/Landing
See VTOL

Vessels
See Vehicles, Marine

Vest, C. M.
Holographic Detection of Microcracks [71-Met-C] (*A*) ..... Ag 48

VEST (Volunteer Engineers, Scientists, and Technicians)
Out of Work? VEST Offers Answers to Professionals ..... Jl 57
VEST Provides Quick Job Match ..... Ag 118, S 126, O 116, N 118, D 118

Vezirogiu, T. Nejat
Boiling-Flow Instabilities in a Cross-Connected Parallel-Channel Upflow System [71-HT-12] (*A*) ..... O 61

Vibration
See also Acceleration, Accelerometers; Automation; Beams; Bending; Dampers, Damping; Deformation; Design Engineering; Frequencies; Liquids; Machinery, Machines; Mechanics; Resonance; Rotation, Rotating Equipment, Rotors; Shock; Stresses and Strains; Structures; Tuning
Application of Holographic Techniques to Turbine Disk Vibration [71-Vibr-105] (*A*) ..... D 54
Applications of Holography to Dynamics: High-Frequency Vibrations of Beams [70-WA/APM-5] (*A*) ..... My 57
Attenuation of Vibrational Amplitudes Through the Use of Multiple-Layered Damping Treatments [71-Vibr-40] (*A*) ..... N 51
The Autoparametric Vibration Absorber [71-Vibr-49] (*A*) ..... N 52
Axial Vibration Transmission Characteristics of Shells of Revolution [71-Vibr-7] (*A*) ..... N 48
Bellows Vibration with Internal Cryogenic Fluid Flows [71-Vibr-14] (*A*) ..... N 49
Compression Springs for Vibration Isolation (*NTB*) Ap 46
Some Considerations in Design, Specification, and Evaluation of Digital Control System for Random Vibration Testing [71-Vibr-30] (*A*) N 50
The Coupled Bending-Bending Vibration of Pre-Twisted Tapered Blading [71-Vibr-78] (*A*) D 52
Coupled Response of Spatial Vibratory Structures Mounted to Isotropic Plate Elements [71-Vibr-3] (*A*) ..... N 48
Damped Isolation and Undamped Vibration Absorber Model for Vibration Control [71-Vibr-45] (*A*) ..... N 52
Dynamic Analysis of Structural Frames Supporting Vibrating Conveyors [71-Vibr-34] (*A*) ..... N 51
Dynamic Characteristics of a Vibrating Plate Compactor [71-Vibr-18] (*A*) ..... N 49
Effect of Higher Harmonics on Performance of Vibratory Conveyors [71-Vibr-35] (*A*) ..... N 51
Failure Prediction Through the Theory of Stochastic Excursions of Extreme Vibration Amplitudes [71-Vibr-60] (*A*) ..... N 53
On the First Excursion Probability in Stationary Narrow-Band Random Vibration [71-APM-19] (*A*) ..... S 56
A First-Passage Approximation in Random Vibration [70-WA/APM-14] (*A*) ..... My 58
Flow Near Self-Excited and Forced Vibrating Circular Cylinders [71-Vibr-25] (*A*) ..... N 50
Forced Vibration of a Beam with Time-Dependent Boundary Condition [71-Vibr-32] (*A*) ..... N 50
Free-Surface Vibrations of a Magnetic Liquid [71-Vibr-24] (*A*) ..... N 50
Free Vibrational Characteristics of Pretensioned Cable Roofs [71-Vibr-4] (*A*) ..... N 48
Free Vibrations of a Linear Structure with Arbitrary Support Conditions [71-APM-6] (*A*) S 55
The Free Vibrations of a Spinning Centrally Clamped Shallow Spherical Shell [71-APM-G] (*A*) ..... O 60
Free Vibrations of Viscoelastic Timoshenko Beams [70-WA/APM-44] (*A*) ..... Je 48
Held Firm by Thread (*BTR*) ..... Ag 39
Identification of Failing Mechanisms Through Vibration Analysis [71-Vibr-90] (*A*) ..... N 54
An Investigation of Broad Band Random Vibration Simulation [71-Vibr-2] (*A*) ..... N 48
Large Amplitude Vibration of a Circular Plate with Concentric Rigid Mass [71-APMW-11] (*A*) N 55
Large Amplitude Vibrations of Circular Plate on a Uniform Elastic Foundation [71-Vibr-9] (*A*) N 48
A New Approach for Plate Vibrations: Combination of Transfer Matrix and Finite-Element Technique [71-Vibr-85] (*A*) ..... D 53
Noise Abatement in Industry
Interaction of Sound and Structures
Sound and Vibration Transmission Through Panels and Tie Beams Using Statistical Energy Analysis [70-WA/DE-2] (*A*) F 65, Ap 55
Vibration Response and Wave Propagation in Periodic Structures [70-WA/DE-3] (*A*) F 65, Ap 55
Nonlinear Vibration of Buckled Beams [71-Vibr-17] (*A*) ..... N 49
Nonlinear Vibrations of a Beam under Harmonic Excitation [70-WA/APM-13] (*A*) ..... My 58
Nonlinear Vibrations of a Buckled Beam Under Harmonic Excitation [70-WA/APM-48] (*A*) Je 48
On the Nonlinear Vibrations of Free-Free Beams [70-WA/APM-55] (*A*) ..... Je 49
Normal Mode Solution for the Vibrational Motions of Long Flexible Booms on the RAE Satellite [71-DE-J] (*A*) ..... Jl 48
The Octave Band Vibration Analyzer as a Machinery Defect Indicator [71-DE-47] (*A*) .. Ag 47
Off-the-Shelf Vibration System (*BTR*) ..... S 39
Portable Mobility Meter (*OS*) ..... Jl 34
Predicting Machine Failure (*BTR*) ..... Ag 39
The Rationale of Monitoring Vibration on Rotating Machinery in Continuously Operating Process Plant [71-Vibr-96] (*A*) ..... D 53
Relationship Among Frequency, Amplitude, Damping and Human Awareness for Floor Vibration Due to Impact [71-Vibr-44] (*A*) N 51
Steady Eddies and Other Shaky Cases [1970 Thurston Lecture: excerpts] ..... Ja 78
Von Karman Vortices (*C*) ... My 60, Jl 52, S 59
A Strain Energy Comparison of Discrete Modeling for Vibrating Continuous Systems [71-Vibr-5] (*A*) ..... N 48
Studies on the New Vibratory Powdering Machine [71-Vibr-26] (*A*) ..... N 50
Sum and Difference Frequencies in Vibration of High Speed Rotating Machinery [71-Vibr-103] (*A*) ..... D 54
Theory of the Dynamic Vibration Neutralizer with Motion-Limiting Stops [71-APMW-14] (*A*) N 56
Time Domain Optimization of a Vibration Absorber [70-WA/DE-5] (*A*) ..... F 66
Transient Response of a Vibration Isolation System [71-Vibr-33] (*A*) ..... N 50
Transient Torsional Vibration Due to Suddenly Applied Torque [71-Vibr-99] (*A*) ..... D 53
Vibration and Dynamic Stability of an Axially Moving Belt [71-Vibr-31] (*A*) ..... N 50
Vibration Detection Using Lasers (*NTB*) .... S 40
Vibration Monitoring System (*OS*) ..... D 45
Vibrations of Multicore Orthotropic Sandwich Plates [71-Vibr-48] (*A*) ..... N 52
The Wave Reflection Matrix in Beam Vibration Control [70-WA/Aut-1] (*A*) ..... F 69

Vickers, Paul T. named assistant head of Emissions Research Department, General Motors Research Laboratory ..... D 80

Vickery, Stewart R.
Evolution and Technology (*C*) ..... My 60

Vidosic, Joseph P. receives, at 1970 WAM, ASME certificate for initiative and leadership in development of new engineering merit badge for Boy Scouts of America ..... Ja 75

Viewports
Procurement of Safe Viewports for Hyperbaric Chambers [71-PVP-1] (*A*) ..... Ag 49

Villarreel, F.
Fluoric Carbon Dioxide Concentration Sensor [70-WA/Flcs-10] (*A*) ..... Je 43

Vinson, J. R.
Laminated Transversely Isotropic Cylindrical Shells [70-WA/APM-53] (*A*) ..... Je 48

Viscoelasticity
Attenuation of Vibrational Amplitudes Through the Use of Multiple-Layered Damping Treatments [71-Vibr-40] (*A*) ..... N 51
On the Contact Problem of a Rigid Punch Pressed on a Viscoelastic Beam [71-APMW-18] (*A*) N 56
Crack Propagation in a Linearly Viscoelastic Strip [71-APM-B] (*A*) ..... O 59
Determination of the Duration of Memory for Viscoelastic Materials [70-WA/APM-4] (*A*) My 57
A Family of Viscoelastic Materials for Diverse Damping Applications [71-Vibr-47] (*A*) .... N 52
Free Vibrations of Viscoelastic Timoshenko Beams [70-WA/APM-44] (*A*) ..... Je 48
Hemodynamic Flow in Anisotropic, Viscoelastic Thick-Wall Vessels [70-WA/APM-59] (*A*) Je 49
Large Deflections of a Linearly Viscoelastic Shallow Spherical Shell [71-APMW-28] (*A*) N 57
A Linear Compressibility Assumption for the Multiple Integral Representation of Nonlinear Creep of Polyurethane [70-WA/APM-6] (*A*) My 75
Methods of Modeling and Analyzing Viscoelastically Damped Structures [71-Vibr-36] (*A*) .... N 51
Numerical Computation of Spherical Waves in Two Viscoelastic Media [71-APMW-23] (*A*) .... N 57
Resonance Response Criteria of a Damped Three-Layered Beam [71-Vibr-102] (*A*) ..... D 54
Slow Viscoelastic Flow at Large Distance from an Axis of Symmetry [71-APMW-9] (*A*) ..... N 55
Using Viscoelastic Coatings to Reduce Structure-Borne Noise into a Fluid [71-Vibr-29] (*A*) N 50
Wave Propagation in Viscoelastic Laminates [70-WA/APM-40] (*A*) ..... Je 47

Viscometers
Theory of the Oscillating Viscometer for Slip Flow [71-APM-K] (*A*) ..... O 60

Viscomi, B. V.
Nonlinear Dynamic Response of Elastic Slider-Crank Mechanism [70-Mech-39] (*A*) ..... Ja 50

Viscosity
An Examination of Eddy Viscosity Models for Turbulent Free Shear Flows [71-FE-17] (*A*) Ag 55
Gas-Engine Oil Ash and Viscosity Limits—The Supplier's Dilemma [71-DGP-10] (*A*) ..... Ag 49
Some Observations on the Velocity Profiles in Fully Developed Viscous Flow in Turbomachines [70-WA/FE-24] (*A*) ..... F 74
Slow Particulate Viscous Flow in Channels and Tubes—Application to Biomechanics [71-APM-R] (*A*) ..... O 59
Unsteady Flow About a Solid Cylinder Falling Through a Viscous Fluid Contained in a Vertical Tube [70-WA/FE-9] (*A*) ..... F 72

Visibility
Listen at Him (*PB*) ..... D 43

Visser, C.
Analysis of Stresses in Pressurized Welded Pipe in the Creep Range [71-PVP-66] (*A*) ..... S 59

Visual Information
Blurred by Computer (*PB*) ..... Je 36

Vliet, G. C. corecipient at 1970 WAM of National Heat Transfer Conference of 1969 Best Paper Award ..... Ja 71

V-Notch
Vee-Notch Tool Cuts Specimens (*NTB*) .... Mr 47

Vocalism
Control of Machines by Conversational Speech [71-DE-7] (*A*) ..... Jl 45

Voelker, F. C.
Dynamic Shock Phenomena in Rolling Mills [71-Vibr-95] (*A*) ..... D 53

Voice Signatures
"Voiceprint" Identification (*BTR*) ..... Ja 31

Void
Ultrasonic Velocity of Sound and Void Fraction in a Bubbly Mixture [71-FE-26] (*A*) ..... S 52

Voltage
Monster Makers (*PB*) ..... O 51

Volume
Volume-Checking Tool (*NTB*) ..... F 50
Volume Interchange Factors for Nonhomogeneous Gases [71-HT-19] (*A*) ..... O 62

Von Turkovich, B. F.
Mechanics of Tool-Workpiece Engagement and Incipient Deformation in Machining of 70/30 Brass [71-Prod-4] (*A*) ..... Jl 48

Vopat, William A. appointed dean of Cooper Union's School of Engineering and Science Ap 85

Volunteer Engineers, Scientists, and Technicians
See VEST

Vortexes
See also Taylor Vortex
Cooling It—or Him (*BTR*) ..... S 42
Experiments on the Onset of Longitudinal Vortices in Laminar Forced Convection Between Horizontal Plates [71-HT-1] (*A*) ..... O 60

Vortexes (*Continued*)
Flow and Performance Characteristics for Non-Vented Vortex Amplifiers [70-WA/Flcs-18] (*A*) Je 44
Fluctuating Lift Forces of the Karman Vortex Streets on Single Circular Cylinders and in Tube Bundles
Part 1: The Vortex Street Geometry of the Single Circular Cylinder [71-Vibr-11] (*A*) N 49
Part 2: Lift Forces of Single Cylinders [71-Vibr-12] (*A*) N 49
Part 3: Lift Forces in Tube Bundles [71-Vibr-13] (*A*) N 48
A Numerical Study of the Flow in the Vortex Angular-Rate Sensor [70-WA/FE-5] (*A*) F 72
Steady Eddies and Other Shaky Cases [1970 Thurston Lecture: excerpts] Ja 78
Von Karman Vortices (*C*) My 60, Jl 52, S 59
Vortex Excitation of Metal Bellows [71-Vibr-22] (*A*) N 50
Vortex Induced and Forced Switching of Two-Dimensional Jets [70-WA/Flcs-13] (*A*) Je 44
Vortometric Burner
New Industrial Burner (*BTR*) Je 32
Voss (Walter C.) Award
See Honors
Vrana, J. C. deceased Jl 78
VTOL
Lift Jet Engine, JR100 [71-GT-75] (*A*) Jl 41
Vutz, Norman
Rapid Transit Progress (*C*) F 77

W

Wakes
The Turbulence Characteristics of Two-Dimensional Wall-Jet and Wall-Wake Flows [70-WA/APM-35] (*A*) Je 47
The Unsteady Wake of an Oscillating Cylinder at Low Reynolds Number [71-APM-33] (*A*) O 59
Waldo, J. B.
Maintenance of Radioactive Sodium Systems at EBR-II [71-NE-12] (*A*) Jl 43
Walker, Henry L. receives Outstanding Leadership Award from Metropolitan Section of ASME Jl 75
Walker, T.
A Rating Formula for Fine Pitch Boundary Lubricated Gears [70-Mech-63] (*A*) Ja 52
Wallace, P. W.
Speed Effects in Forging Lubrication [70-Lub-11] (*A*) Ja 42
Wallis, Graham receives Lewis F. Moody Award at 1971 Conference of ASME Fluids Engineering Division S 89
Walls
See also Conductance
Entrance Development of the Weakly Interacted MHD Plane Channel Flow as Affected by Wall Conductances [71-APM-A] (*A*) O 59
Flow and Pressure Recovery in Wall-Attachment Fluid Amplifiers [70-WA/Flcs-9] (*A*) Je 43
Flow Development in a Channel Having a Longitudinally Moving Wall [70-WA/APM-11] (*A*) My 58
Free Convection from a Vertical Plate with Discontinuous Wall Temperature [71-HT-B] (*A*) N 58
Hemodynamic Flow in Anisotropic, Viscoelastic Thick-Wall Vessels [70-WA/APM-59] (*A*) Je 49
A Momentum-Integral Analysis of the Three-Dimensional Turbine End-Wall Boundary Layer [71-GT-6] (*A*) Ag 44
A Numerical Method for Predicting the Pressure History of a Sonic Boom Wave Incident on Arbitrarily Oriented Plane Walls [70-WA/APM-9] (*A*) My 57
Theoretical Analysis of Laminar Pipe Flow in a Porous Wall Cylinder [70-WA/Flcs-3] (*A*) Je 43
Transformation of Compressible Turbulent and Laminar Boundary Layers with and without Wall Blowing [71-FE-37] (*A*) S 53
The Turbulence Characteristics of Two-Dimensional Wall-Jet and Wall-Wake Flows [70-WA/APM-35] (*A*) Je 47
Variable Conductance Wall [71-HT-39] (*A*) N 58
Variational Equation of Motion for Coupled Flexure and Torsion of Bars of Thin-Walled Open Section Including Thermal Effect [70-WA/APM-51] (*A*) Je 48
Walmet, G. E.
Vaporisation from Capillary Wick Structures [71-HT-35] (*A*) O 63
Walsh, E. K.
Critical-Induced Acceleration for Shock Propagation in Polymethyl Methacrylate [71-APM-14] (*A*) S 56
Walters, R. J. deceased Je 80
Walters, Samuel
Power in the Year 2001
Part 1—Dawn of the Solar Age S 24
Part 2—Thermal Sea Power O 21
Part 3—Solar Power N 33
Part 4—Rock Burning D 27
Sea Burning D 30
Wamsley, J. R.
Overview of a 90-Day Manned Test in a Space Station Simulator [71-Av-38] (*A*) O 58
Wang, R. L.
Chemical Nonequilibrium in Supersonic Nozzle Flow [71-FE-8] (*A*) Ag 54
Wang, S. M.
Torsional Response of a Gear Train System [71-Vibr-77] (*A*) D 52
Wang, W. M.
On Elastomer Mount Design When Machine and Foundation Are Multi-Resonant Structures [71-Vibr-51] (*A*) N 52
Wang, Y. F.
Transient Interaction of Spherical Acoustic Waves and a Spherical Elastic Shell [70-WA/APM-29] (*A*) Je 46
Wann, R. J.
Evaluation of Structural Dampers Under Linear or Sinusoidal Displacement Control [71-Vibr-46] (*A*) N 52
Warburton, G. B.
Harmonic Response of Masses on an Elastic Half Space [71-Vibr-59] (*A*) N 53
Warehouses, Automatic
Arrangement and Operation of a Bulk Material-Handling Terminal [70-WA/MH-3] (*A*) My 53
Waring, A. E.
Further Considerations of Jerk Pump Design Factors for High Specific Output Diesel Engines [71-DGP-12] (*A*) Ag 49
Warner, Ralph S. receives DGP Speaker Award for paper at 1971 DGP Conference Jl 67
Warner (Worcester Reed) Medal
See Honors
Warning Systems
GEOALERT Warning System (*NB*) N 69
Microwave Radiator (*PB*) S 44, 45
Pollution Warning System (*OS*) Ap 53
Warren Beams
The Static and Dynamic Behavior of Warren Type Machine Tool Structural Elements [70-WA/Prod-7] (*A*) Mr 60
Wasserman, Adrian E. appointed project manager in charge of proposals for Rust Furnace Co., Pittsburgh, after two years in England as general manager of Rust Furnace Co. Ltd. Ja 104
Waste Handling
See also Manned Space Station; Refuse Treatment; Solids
Advanced Waste Treatment Process Manuals (*TL*) Ja 67
Beneficial Uses of Waste Heat [70-WA/Ener-10] (*A*) Ap 62
Design Students Take Waste Item and Turn It into Usable Products (*EN*) Ag 68
Engineering a Better Environment
1: Environmental Dangers Challenge Design Engineers [based on 70-DE-79]
Compatibility (*C*) F 77
Conserving Water (*C*) Ja 56
5: Waste Water Treatment Enhances Environment [based on 70-PEM-19] Mr 40
9: Waste Heat Uses Cut Thermal Pollution [based on 70-WA/Ener-6] Jl 15
Waste Heat Uses (*C*) (*AC*) O 66
Uses of Waste Heat [70-WA/Ener-6] (*A*) Ap 61
EPA Awards Grants (*NB*) D 67
Marinas Fight Pollution (*BTR*) S 37
Oil-Loving Garbage (*BTR*) O 42
Optimum Burning (*BTR*) F 48
Skimming Oil from Basins and Lagoons [based on 70-Pet-3] Ap 24
Skimming Oil from Basins and Lagoons (*C*) Je 51
Solid Waste (*NB*) Ag 67
Solid Waste Disposal (*NB*) My 76
Sorting Things Out (*BTR*) D 37
Sulfur Oxide Control and Fly Ash Utilization [71-Pwr-1] (*A*) D 51
Waste Monitoring Urged (*BTR*) Mr 49
Wastewater Treatment (*NB*) My 76
Watanabe, I.
On the Behavior of Uniform Shear Flow in Diffusers and Its Effects on Diffuser Performance [71-GT-5] (*A*) Ag 44
Effects of Reynolds Number on Performance Characteristics of a Centrifugal Compressor [71-GT-25] (*A*) Jl 36
Investigation Concerning the Fluid Flow in the Mixed-Flow Diffuser [71-GT-40] (*A*) Jl 38
A Study on the Flow Pattern Within the Centrifugal and Mixed-Flow Impellers [71-GT-41] (*A*) Jl 38
Water
See also Heavy Water; Manned Space Station; Seawater
An Analytical Investigation of Free Convection Heat Transfer to Supercritical Water [70-WA/HT-8] (*A*) Ap 58
Calibration of Constant-Temperature Hot-Wire Anemometers at Low Velocities in Water with Variable Fluid Temperature [71-HT-9] (*A*) O 61
Committee for Water Programs [Established by U. S. Environmental Protection Agency Office of Water Programs] (*NB*) N 69
Control of Water Pollution from the Discharge of Liquid Effluents of Wet-Collector Type Gas-Cleaning Systems [70-WA/PID-9] (*A*) Mr 64
Controlled Flash Evaporation My 27
Critical Rayleigh Numbers for Natural Convection of Water Confined in Square Cells with L/D from 0.5 to 8 [70-WA/HT-7] (*A*) Ap 59
Desalination Test Plant (*OS*) N 44
Engineering a Better Environment
1: Environmental Dangers Challenge Design Engineers [based on 70-DE-79]
Compatibility (*C*) F 77
Conserving Water (*C*) Ja 56
5: Waste Water Treatment Enhances Environment [based on 70-PEM-19] Mr 40
Engineering Water Resources for 2070 [based on 70-WA/PID-8] Jl 7
Water Resources for 2070 (*C*) D 56
Engineering Water Resources of the Future [70-WA/PID-8] (*A*) Mr 64
EPA Awards Grants (*NB*) D 67
Fluid Transient Conditions in Condenser Cooling Water Systems [70-WA/FE-25] (*A*) F 74
Fluidic Water Control for Water-Closet Tanks [70-WA/Flcs-11] (*A*) Je 43
The Forces on a Cylinder Oscillating Sinusoidally in Water [71-Pet-2] (*A*) D 47
Fresh Water to L. A. (*NB*) Je 58
Geothermal Resources (*OS*) My 51
"Heat Picture" of N. Y. Waters (*BTR*) Ja 33
Inhibition of Water-Accelerated Rolling-Contact Fatigue [70-Lub-9] (*A*) Ja 42
An Interferometric Technique for Temperature and Concentration Measurement for an Air-Water Interface [70-WA/Temp-1] (*A*) My 54
The Joule-Thomson Effect in Compressed Liquid Water [70-WA/PID-2] (*A*) Mr 63
Marinas Fight Pollution (*BTR*) S 37
Metal Erosion through Water Impact (*NTB*) N 38
The Natural Frequencies of Two Spherical Bubbles Oscillating in Water [70-WA/FE-7] (*A*) F 72
New Desalination Plant (*OS*) Mr 52
New Desalting Plant (*OS*) Jl 34
New Water Pump (*OS*) Je 39
A Prediction of Water-Entry Cavity Shape [70-WA/FE-8] (*A*) F 72
Pulsation Mitigation Experience at the Willamar Waterflood Plant [71-Pet-12] (*A*) D 48
Research into Cooling-Water Discharge (*BTR*) Ag 35
The Response of Narrow-Mouthed Harbors in a Straight Coastline to Periodic Incident Waves [70-WA/APM-46] (*A*) Je 48
Skimming Oil from Basins and Lagoons [based on 70-Pet-3] Ap 24
Skimming Oil from Basins and Lagoons (*C*) Je 51
SST vs. the Rain Drop (*BTR*) Je 34
Tennessee Water Quality Control Act of 1971 signed S 97
Thermal Prospecting (*BTR*) F 53
Two-Dimensional Diffuser Performance with Subsonic, Two-Phase, Air-Water Flow [71-FE-20] (*A*) S 51
Waste Monitoring Urged (*BTR*) Mr 49
Wastewater Treatment (*NB*) My 76
Water Desalination Module (*NR*) Mr 70
The Water Encyclopedia (*TL*)
"Water Encyclopedia" D 71
Water Quality Management—Delaware River Estuary [70-WA/PID-6] (*A*) Mr 63
Water Hammer
Measurement of Transient Flow Velocities for Water Hammer Applications [71-FE-29] (*A*) S 52
Waters, J. P.
Holographic Analysis of Turbine Blades [71-GT-34] (*A*) Jl 41
Holographic Characterization of Aerospace Components [71-GT-74] (*A*) Jl 40
Watson, D. C.
The Octave Band Vibration Analyzer as a Machinery Defect Indicator [71-DE-47] (*A*) Ag 47

Watson, H. E.
Fatigue Crack Growth in Type 316 Stainless Steel at High Temperatures [71-PVP-25] (*A*)...Ag 52
Watson, L. G.
Unconfined Elastomer Die Blanking [based on 71-Prod-6]....D 12
Unconfined Elastomer Die Blanking [71-Prod-6] (*A*)....Jl 49
Watson, P. D.
Repair of Primary Pressure Systems Piping in a Nuclear Power Plant [71-PVP-50] (*A*) Ag 50, S 48
Watt (James) International Gold Medal
See Honors
Watt's Mechanisms
Kinematic Synthesis of Watt's Mechanism [70-Mech-50] (*A*)....Ja 51
Six-Bar Cognates of Watt's Form [70-Mech-30] (*A*) Ja 49
Watts, R. G.
The Effect of Curvature on Heat or Mass Transfer from an Isothermal Sphere [71-HT-7] (*A*)...O 61
Wave Technology
Concealed Weapon Detector (*BTR*)....S 36
Determination of the Unloading Boundary in Longitudinal Elastic-Plastic Stress Wave Propagation [71-APM-15] (*A*)....S 56
Elastic-Plastic Plane Waves with Combined Compressive and Two Shear Stresses in a Half Space [71-APM-10] (*A*)....S 56
Electromagneto-Thermoelastic Plane Waves in Solids with Thermal Relaxation [71-APMW-5] (*A*)....N 55
An Experiment on Laser-Generated Stress Waves in a Circular Elastic Ring [71-APMW-2] (*A*) N 55
An Experimental and Numerical Study of Elastic Strain Waves on the Center Line of a 6061-T6 Aluminum Bar [71-APMW-22] (*A*)....N 57
An Experimental Study of Dispersion of Stress Waves in a Fiber-Reinforced Composite [71-APM-27] (*A*)....S 57
Fundamental and Higher-Mode Density-Wave Oscillations in Two-Phase Flow: The Importance of the Single-Phase Region [71-HT-13] (*A*) O 62
Guided Surface Waves on an Elastic Half Space [71-APM-7] (*A*)....S 55
The Hodograph Transformation in Plastic Waves with Discontinuous Loading Conditions [71-APMW-12] (*A*)....N 55
On the Initial Speed of Elastic-Plastic Boundaries in Longitudinal Wave Propagation in a Rod [70-WA/APM-50] (*A*)....Je 48
Listen at Him (*PB*)....D 43
Noise Abatement in Industry
Interaction of Sound and Structures
Vibration Response and Wave Propagation in Periodic Structures [70-WA/DE-3] (*A*) F 65, Ap 55
Numerical Computation of Spherical Waves in Two Viscoelastic Media [71-APMW-23] (*A*) N 57
A Numerical Method for Predicting the Pressure History of a Sonic Boom Wave Incident on Arbitrarily Oriented Plane Walls [70-WA/APM-9] (*A*)....My 57
Propagation of Longitudinal Waves in Circularly Cylindrical Bone Elements [71-APM-5] (*A*) S 55
Radial Stress Release Phenomena in Plate Impact Experiments: Compression—Release [71-APMW-16] (*A*)....N 56
The Response of Narrow-Mouthed Harbors in a Straight Coastline to Periodic Incident Waves [70-WA/APM-46] (*A*)....Je 48
The Scattering of Shock Waves by Cylindrical Cavities in Liquids and Solids [70-WA/APM-57] (*A*)....Je 49
Shock Wave Behavior in Transonic Compressor Noise Generation [71-GT-7] (*A*)....Ag 44
Surge Waves in Stranded Springs [71-Vibr-94] (*A*) D 53
Thermally Induced Stress Waves in a Laminated Composite [71-APM-28] (*A*)....O 58
Time-Harmonic Waves Traveling Obliquely in a Periodically Laminated Medium [70-WA/APM-47] (*A*)....Je 48
Transient Interaction of Spherical Acoustic Waves and a Spherical Elastic Shell [70-WA/APM-29] (*A*)....Je 46
Traveling Waves in Rotating Cylindrical Shells [71-DE-A] (*A*)....Jl 47
Wave Amplitude Study for Two-Phase Flow in a Horizontal Channel [71-FE-2] (*A*)....Ag 54
Wave Propagation in Viscoelastic Laminates [70-WA/APM-40] (*A*)....Je 47
The Wave Reflection Matrix in Beam Vibration Control [70-WA/Aut-1] (*A*)....F 69
Wear
Designing for Wear Characteristics of Members in Sliding Mechanisms [71-DE-39] (*A*)....Ag 46
Lubricant for the "Wear-In" (*BTR*)....Mr 50
Theoretical Model of Crater Wear [71-Prod-8] (*A*) Jl 49
Weather
SST vs. the Rain Drop (*BTR*)....Je 34
Weaver, Charles H. named president—world regions, Westinghouse Electric Corp....N 89
Weaver, D. S.
The Influence of a Free Surface on the Hydroelastic Stability of a Flat Panel [71-APM-16] (*A*) S 56
Weaver, H. Joseph, Jr.
Stability and Boundedness Domains of Autonomous Discrete-Time Systems [70-WA/Aut-12] (*A*)....F 70
Weaver, L. H. deceased....O 91
Weber, A. R. deceased....D 83
Weber, Albert M. deceased....Ja 107
Weber, E. C.
Process Plant Design for an Extremely Cold Environment [71-Pet-7] (*A*)....D 48
Weber, H. E.
Transformation of Compressible Turbulent and Laminar Boundary Layers with and without Wall Blowing [71-FE-37] (*A*)....S 53
Webs
Web-Stiffened Sandwich Structures [71-APM-8] (*A*)....S 55
Webster, J. J.
Harmonic Response of Masses on an Elastic Half Space [71-Vibr-59] (*A*)....N 53
Wedeven, L. D.
Optical Analysis of Ball Bearing Starvation [70-Lub-19] (*A*)....Ja 44
Wedges
Low-Speed Slip Flow over a Wedge [70-WA/APM-26] (*A*)....My 59
Two Edge-Bonded Elastic Wedges of Different Materials and Wedge Angles Under Surface Tractions [70-WA/APM-58] (*A*)....Je 49
Wedner, Benjamin M. elected Fellow ASME Ap 86
Wegmann, Jerome B. appointed chief operating officer of engineering and research & development for Lincoln St. Louis, division of McNeil Corp....Ap 85
Weibull Statistical Parameters
Some Tentative Weibullian Descriptions of the Properties of Steels, Aluminums, and Titaniums [71-Vibr-64] (*A*)....N 53
Weigel, B.
Decision to Convert or Replace the Boiler [71-IPwr-1] (*A*)....S 53
Weights
Multiplane Balancing of Flexible Rotors—A Method of Calculating Correction Weights [71-Vibr-52] (*A*)....N 52
Weinhold, J. Frederick
Energy's Role in Meeting the Needs of the 1970's [70-WA/Ener-9] (*A*)....Ap 62
Weinmann, K. J.
Mechanics of Tool-Workpiece Engagement and Incipient Deformation in Machining of 70/30 Brass [71-Prod-4] (*A*)....Jl 48
Weinstein, A. S.
The Minimum Gage Problem in Thin Strip Rolling [70-Lub-24] (*A*)....Ja 45
Weinstein, H.
The Mixing of Two Parallel Streams of Dissimilar Fluids
Part 1: Analytical Development [70-WA/APM-37] (*A*)....Je 47
(Turbulent Mixing of Two Parallel Streams)
Part 2: An Experimental Investigation [70-WA/APM-38] (*A*)....Je 47
Weiss, C. D.
Design Considerations in Inertia Welding of Turbocharger and Gas Turbine Components [71-GT-21] (*A*)....Ag 45
Weiss, Louis T. deceased....My 91
Weissbart, J.
Design and Performance of a Solid Electrolyte Oxygen Generator Test Module [71-Av-8] (*A*) O 55
Weitz, Harold deceased....F 106
Welds, Welding
Analysis of Cracks in Welded Elbows [71-PVP-32] (*A*)....Ag 53
Analysis of Stresses in Pressurized Welded Pipe in the Creep Range [71-PVP-66] (*A*)....S 50
Butt Welder for Fine-Gage Wire (NTB)....Je 30
Cause and Prevention of Stress-Relief Cracking in Quenched and Tempered Steel Weldments [71-PVP-3] (*A*)....Ag 49
Circumferential Welds in Multilayer Pressure Vessels [70-WA/PVP-6] (*A*)....F 76
"Cold" Coating Process (*BTR*)....Ap 44
Depth of Penetration During Electron Beam Welding [70-WA/HT-2] (*A*)....Ap 58
Design Considerations in Inertia Welding of Turbocharger and Gas Turbine Components [71-GT-21] (*A*)....Ag 45
The Effect of Composite on the Stress-Rupture Properties of Fully Austenitic Stainless Steel Welds [71-PVP-64] (*A*)....S 50
Elevated Temperature Properties of Maraging Steel Plates and Welds [71-Met-E] (*A*)...Ag 48
Fatigue-Crack Growth Rates and Fracture Toughness Study of Welded Aluminum Alloy 5083 [70-WA/PVP-5] (*A*)....F 76
Fracture Toughness of ASTM A533 Grade B Class 1 Heavy Section Submerged Arc Weldments [71-Met-B] (*A*)....Ag 48
High Temperature Embrittlement Phenomena of 2¼Cr-1Mo Weldments [71-Pet-19] (*A*)....D 49
Inertia Welded Jet Engine Components [71-GT-33] (*A*)....Jl 37
The "Johnson-Sea-Link"—The First Deep-Diving Welded Aluminum Submersible [70-WA/UnT-6] (*A*)....Je 45
Slatted Stencil (*PB*)....O 50
Ultrasonic Inspection of Fusion Butt Welds (*NTB*) Mr 47
Welding of Cryonic 5 Steel [71-Pet-33] (*A*)...D 50
Weliachew, Leonid N.
Life Clues in Interstellar Space (*BTR*)....O 43
Welland, S.
Evaluation of Cardiac Work by Means of the Thermodilution Technique Employing the Thermocatheter [70-WA/Temp-2] (*A*)...My 54
Wellauer, E. J.
AGMA Standards as Engineering Tools for the Rating, Design, Production, and Inspection of Gearing [71-DE-14] (*A*)....Jl 46
Wells
Combating Well Casing Corrosion [71-Pet-16] (*A*) D 48
Wells, C. H.
Creep of Single Crystal Nickel-Base Superalloy Tubes Under Biaxial Tension [71-APM-1] (*A*) S 55
Electrochemical Grinding of Cylindrical Test Specimens [71-Prod-11] (*A*)....Jl 49
Wells, G. W.
Waste Management for the 90-Day Space Station Simulator Test [71-Av-7] (*A*)....O 55
Wells, John W.
Identifying the Engineer (*C*)....Ap 66
Wells, R. J.
Prediction of Silencer Performance Using Transmission Line Theory [71-GT-8] (*A*)....Ag 44
Wells, Rex H. deceased....Ja 107
Welsh, Robert W. deceased....F 106
Welty, James R. appointed head of Oregon State University Department of Mechanical and Nuclear Engineering....Ag 85
Wendt, M. F. deceased....Je 80
Werle, M. J.
Incompressible Laminar Boundary Layers on a Parabola at Angle of Attack: A Study of the Separation Point [71-APM-31] (*A*)....O 58
Wessel, E. T.
Fracture Toughness of ASTM A533 Grade B Class 1 Heavy Section Submerged Arc Weldments [71-Met-B] (*A*)....Ag 48
Westcott, J. C.
ASME Performance Test Codes Committee PTC-2 on Definitions and Values
Report on Proposed Code of Definitions and Values [70-WA/PTC-2] (*A*)....My 52
Westinghouse Educational Foundation
Environmental Contest (*EN*)....Ja 64
Westinghouse Electric Corp.
Coming: The Offshore A-Plant (*BTR*)....D 35
New Gas Turbine Plant in Texas (*NB*)....Je 58
New Nuclear Headquarters....Ag 81
Westinghouse to Supply Nuclear Equipment (*NB*) D 67
Westinghouse (George) Medal of ASME
See Honors
Westmann, R. A.
Dynamic Response of a Rigid Footing Bonded to an Elastic Half Space [71-APMW-15] (*A*)....N 56
Westwater, J. W.
Critical Rayleigh Numbers for Natural Convection of Water Confined in Square Cells with L/D from 0.5 to 8 [70-WA/HT-7] (*A*)....Ap 59
Weyer, H.
Development and Testing of Techniques for Oscillating Pressure Measurements Especially Suitable for Experimental Work in Turbomachinery [71-FE-28] (*A*)....S 52
Wheat, Oscar G. deceased....Mr 88
Correction (*C*)....My 61
Wheeler, Frank I., Jr. deceased....F 106
Wheels
Anti-Skid System (*BTR*)....O 49
The Development of a Turbine Wheel Design Criterion Based upon Fracture Mechanics [71-GT-10] (*A*)....Ag 44
Study of Rim Stresses Resulting from Static Loads on Different 36-Inch Railroad Wheel Designs [71-RR-4] (*A*)....S 51
Whitacre, John A.
High-Speed Ice Train (*C*)....Ag 57

Whitaker, R. A.
Manufacturing Approaches to Resin Matrix Composite Airfoils for Gas Turbine Engines [71-GT-47] (*A*) ..... Ag 45
White, Alden D. deceased ..... F 106
White, F. M.
An Analysis of Axisymmetric Turbulent Flow Past a Long Cylinder [71-FE-25] (*A*) ..... S 52
White, P. H.
Noise Abatement in Industry
Interaction of Sound and Structures
Response of Structures to Nonhomogeneous Random Pressure Fields [70-WA/DE-11] (*A*) ..... F 66, Ap 56
Noise Abatement and Its Control in the Petroleum Industries
Energy Transmission in Piping Systems and Its Relation to Noise Control [70-WA/Pet-3] (*A*) ..... Ap 54
White, R. A.
Some Results on the Heat Transfer Within Resonant Cavities at Subsonic and Supersonic Mach Numbers [71-FE-9] (*A*) ..... Ag 54
Whitehouse, G. D.
Transient Deformation of Slender Rods Impacting Rigid Plates [71-Vibr-93] (*A*) ..... D 53
Whitehurst, J. C. deceased ..... N 93
Whitelaw, J. H.
The Effectiveness of Film Cooling with Three-Dimensional Slot Geometries [71-GT-11] (*A*) Jl 36
The Turbulence Characteristics of Two-Dimensional Wall-Jet and Wall-Wake Flows [70-WA/APM-35] (*A*) ..... Je 47
Whitescarver, L. D. named consultant for Allis-Chalmers Power Systems, Inc. ..... Je 78
Whitney, D. E.
Coordinated Motion Control of Prosthetic Arms and Remote Manipulators [70-Mech-75] (*A*) Ja 53
Whitney, H. LeRoy deceased ..... F 106
Whitston, C. W.
A Concept for Generating Plant Control Rooms Utilizing Human Engineering System Design Criteria [71-Pwr-2] (*A*) ..... D 51
Wicks
Vaporization from Capillary Wick Structures [71-HT-35] (*A*) ..... O 63
Wiebe, J. R.
Superheat Layer Thickness Measurements in Saturated and Subcooled Nucleate Boiling [71-HT-43] (*A*) ..... N 58
Wiederhielm, C. A.
Large Deformation Analysis of the Arterial Cross Section [70-WA/BHF-15] (*A*) ..... Ap 63
Wiegand, H. J. recipient, with K. W. Bills, Jr., of Best Paper Award for Reliability and Maintainability 9th Conference, 1970 ..... S 93
Wiese, Oscar H. deceased ..... My 91
Wilby, J. F.
Noise Abatement in Industry
Interaction of Sound and Structures
Airplane Fuselage Response to Turbulent Boundary Layers [70-WA/DE-10] (*A*) F 66, Ap 56
Wilcox, R. L.
A Fluidic Fuel Control Valve for Turbine Engines [71-GT-44] (*A*) ..... Ag 45
Wilde, Richard A.
Environment-Energy Balance (*C*) ..... Jl 51
Wildlife
Engineering a Better Environment
5: Waste Water Treatment Enhances Environment [based on 70-PEM-19] ..... Mr 40
Wilhoit, J. C., Jr.
Effective Stiffness of Concrete Coated Line Pipe [71-Pet-26] (*A*) ..... D 50
Wilkes, J. Fred to receive ASTM 1971 Max Hecht Award ..... Ja 104
Wilkins, J. Ernest elected treasurer of American Nuclear Society ..... O 89
Wilkinson, J. P. D.
Noise Abatement in Industry
Interaction of Sound and Structures
Underwater Behavior of Free-Flooded Ceramic Ring Transducers [70-WA/DE-7] (*A*) F 66, Ap 55
Willamar Plant
Pulsation Mitigation Experience at the Willamar Waterflood Plant [71-Pet-12] (*A*) ..... D 48
Willems, N.
Parametric Resonance of Stiffened Rectangular Plates [71-APM-26] (*A*) ..... S 57
Williams, Douglas W. deceased ..... My 91
Williams, J. C., III
Velocity and Temperature Profiles in Near-Critical Nitrogen [71-HT-23] (*A*) ..... O 62
Williams, L. W., III
Electrochemical Grinding of Cylindrical Test Specimens [71-Prod-11] (*A*) ..... Jl 49
Williams, R. J.
Frictionless Bimetal-Actuated Louver System [71-Av-39] (*A*) ..... O 58
Williamson, W. R. deceased ..... Ag 87
Willis, Noel C., Jr.
System Features of a Space Station Prototype Environmental/Thermal Control and Life Support System [71-Av-22] (*A*) ..... O 56
Williston (Arthur L.) Medal and Award
See Contests; Honors
Willmert, K. D.
Numerical Determination of the Response of a Linear System with a Singular Mass Matrix [71-Vibr-10] (*A*) ..... N 48
Optimum Design of a Linear Multi-Degree-of-Freedom Shock Isolation System [71-Vibr-81] (*A*) ..... D 52
Willms, James A.
1971 Winner of Arthur L. Williston Medal and Award ..... Ag 32
Civic Service: Young Engineers Set Forth Bold Views ..... Ag 31
To Be a Good Citizen (*A*) ..... Ag 32
Wilson, C. E., Jr.
Axial Vibration Transmission Characteristics of Shells of Revolution [71-Vibr-7] (*A*) ..... N 48
Wilson, Claude L. appointed to 2-year term as at-large council member by College of Engineering Advisory Council at Kansas State University, Manhattan ..... N 89
Wilson, E. A.
A Design Oriented Approach to Creep and Plasticity in Finite Element Programs [70-WA/DE-4] (*A*) ..... F 65
Wilson, Friend A. deceased ..... F 106
Wilson, Grover C. deceased ..... F 106
Wilson, J. T., III
Designing for Wear Characteristics of Members in Sliding Mechanisms [71-DE-39] (*A*) ..... Ag 46
Wilson, M. T.
Radial Flow Measurements of Hydrogen Near Its Critical Point in a Heated Cylindrical Tube [71-HT-25] (*A*) ..... O 62
Wilson, R. Edwin named resident engineer at Saint Joseph Hospital, Joliet, Ill. ..... Ap 85
Wilson, Samuel A., Sr. special engineer in operations division of Bethlehem Steel's fabricated steel construction department, retires ..... O 89
Wilson, W. B.
Selecting the Economic Driver System for Large Compressors [71-Pet-32] (*A*) ..... D 50
Wilson, W. K.
Numerical Method for Determining Stress Intensity Factors of an Interior Crack in a Finite Plate [71-Met-L] (*A*) ..... S 54
Wilson, W. R. D.
A Comparison of the Frictional Losses in Hydrostatic and Conventional Extrusion Processes with Hydrodynamic Lubrication [70-Lub-26] (*A*) Ja 45
Wilton, M. E.
Heat-Transfer Parameters and Transport Properties for Air and Jet Fuel-Air Mixtures [71-HT-41] (*A*) ..... N 58
Wind
Plume Rise and Dispersion in a Local Wind System [70-WA/Fu-1] (*A*) ..... F 75
Semimembrane Analysis of Cylindrical Shells Subjected to Wind Loading [70-WA/APM-7] (*A*) My 57
Windows
Anti-Fog Coating (*NTB*) ..... O 44
Winer, Bernard B. elected Fellow ASME N 91
Winer, W. O.
Fluid Rheological Effects in Sliding Elastohydrodynamic Point Contacts With Transient Loading
1—Film Thickness [70-Lub-21] (*A*) ..... Ja 45
2—Traction [70-Lub-22] (*A*) ..... Ja 45
Winfrey, R. C.
Dynamic Analysis of Elastic Link Mechanisms by Reduction of Coordinates [71-Vibr-98] (*A*) D 53
Elastic Link Mechanism Dynamics [70-Mech-40] (*A*) ..... Ja 50
Winiarski, L. D.
Reflective Cooling Ponds [70-WA/Pwr-4] (*A*) My 54
Wires
See also Insulation
On Aerodynamic Disturbances Caused by Single Hot-Wire Probes [71-APM-T] (*A*) ..... O 59
An Analysis of Corrosion in Wire Ropes [70-WA/UnT-10] (*A*) ..... Je 46
Butt Welder for Fine-Gage Wire (*NTB*) ..... Je 30
Calibration of Constant-Temperature Hot-Wire Anemometers at Low Velocities in Water with Variable Fluid Temperature [71-HT-9] (*A*) O 61
An Investigation of Springback in Wire Products [71-Prod-3] (*A*) ..... Jl 48
Liquid Wire (*BTR*) ..... Jl 28
Wire Stripping via Electric Arc (*BTR*) ..... Ag 34
Wiskind, H. K. deceased ..... S 99
Witt, Joshua C. deceased ..... Jl 78
Wittenschlaeger, Kurt D. joins Koeks-Pittsburgh Corp. in dual post: manager of engineering and sales manager of mill machinery My 88
Woelfel, A. E.
An Underwater Christmas Tree [71-Pet-40] (*A*) D 51
Wohlers, H. C.
Regional Air Quality Control—The Impact and Costs of Refuse Incineration [70-WA/Inc-1] (*A*) F 67
Wolf, Peter J., Jr. appointed district manager for Media, Pa., industrial sales office of Sperry Rand Corporation's Vickers Division Ja 104
Wolin, Robert H. elected Fellow ASME. Jl 77
Wolowodiuk, Walter appointed senior research associate for Foster Wheeler Corp.'s Research Division located in the John Blizard Research Center, near the corporation's general offices in Livingston, N. J. ..... Mr 84
Selection of the Steam Generator for the Proposed 350-MW(e) Demonstration Plant [71-NE-5] (*A*) Jl 42
Women Engineers
Equal Opportunity (*C*) ..... Ap 67
Stevens to Admit Women (*EN*) ..... Ap 73
Woo, L. S.
Dynamic Analysis of Mechanisms Using Screw Coordinates [70-Mech-41] (*A*) ..... Ja 50
Kinematic Analysis of Spatial Mechanisms by Means of Screw Coordinates
Part 2—Analysis of Spatial Mechanisms [70-Mech-14] (*A*) ..... Ja 47
Wood, H. T.
An Analysis of Corrosion in Wire Ropes [70-WA/UnT-10] (*A*) ..... Je 46
Wood, J. L.
Tensile Properties of Bone at High Strain Rates [70-WA/BHF-10] (*A*) ..... Ap 64
Wood, R. T.
The Influence of Turbulence on Mass Transfer from Cylinders [70-WA/HT-3] (*A*) ..... Ap 58
Woodall, N. D.
Application of Air Bearings and Laser Interferometry to an Inspection Machine [70-WA/Prod-29] (*A*) ..... Mr 63
Woodard, Steve H. receives Charles T. Main Award at 1970 WAM ..... Ja 74, 75
Woods, Eileen Duignan
Equal Opportunity (*C*) ..... Ap 67
Woods, R.
The Rationale of Monitoring Vibration on Rotating Machinery in Continuously Operating Process Plant [71-Vibr-96] (*A*) ..... D 53
Worcester Polytechnic Institute
WPI Scraps Grading System (*EN*) ..... F 90
Workman, G. H.
Large Engines—Analyze Before Fabricating [71-DGP-7] (*A*) ..... Ag 48
Workpieces
Checking Workpiece Profiles (*OS*) ..... Je 38
Mechanics of Tool-Workpiece Engagement and Incipient Deformation in Machining of 70/30 Brass [71-Prod-4] (*A*) ..... Jl 48
Workshops
See also Meetings
World Energy Conference
U. S. National Committee
World Energy Press Conference Heralds in Era of Cooperation—Gone Is Era of Competition (*NR*) ..... N 63
World Federation of Engineering Organizations
African Engineers Federation (*OS*) ..... Mr 52
World Statistics
Industrial Output (*NB*) ..... My 76
World Trade Center
World Trade Center Wins Award as "Outstanding Civil Engineering Achievement for 1971" (*NB*) Je 59
Worm Gears
See Gears
Worthington, E. W. deceased ..... O 91
Wotipka, J. L.
Identification of Failing Mechanisms Through Vibration Analysis [71-Vibr-90] (*A*) ..... N 54
Woxny, M. J.
A Directed Random Search [70-WA/Aut-7] (*A*) F 69
Wright, Edward S.
Engineering a Better Environment
8: Auto Pollution Solution: The Gas Turbine? [based on 70-WA/GT-8] ..... Je 25
The Gas Turbine (*C*) ..... Ag 56
The Potential of the Gas-Turbine Vehicle in Alleviating Air Pollution [70-WA/GT-8] (*A*) ..... My 56
Wright (Roy V.) Lecture
See Lectures

Wrotnowski, A. C.
Developing Composites for Torsional Damper-Spring Systems [71-DE-31] (*A*).....J1 47
Wu, C. H.
An Asymptotic Solution of a Rotating Disk [71-APM-Q] (*A*).....O 59
Wu, C. K.
180-Day Life Test of a Solid Electrolyte System for Oxygen Regeneration [71-Av-32] (*A*)...O 57
Wu, Chien-Heng
On the Contact Problem of a Rigid Punch Pressed on a Viscoelastic Beam [71-APMW-18] (*A*) N 56
On the Contact Problems of Inflated Cylindrical Membranes with a Life Raft as an Example [71-APM-11] (*A*).....S 56
Wu, S. M.
Stochastic Model for Machining Processes—Optimal Decision-Making and Control [70-WA/Prod-20] (*A*).....Mr 62
Wu, T. S.
Bounds on the Maximum Contact Stress of an Indented Elastic Layer [71-APM-E] (*A*)...O 60
Wyatt, James B. elected president of Van Dyck Corp., Southport, Conn.....Mr 84
Wydeven, Theodore
Design and Performance of a Solid Electrolyte Oxygen Generator Test Module [71-Av-8] (*A*) O 55
Development Status of the Water Vapor Electrolysis System [71-Av-24] (*A*).....O 57
Wylie, R. D.
Repair of Primary Pressure Systems Piping in a Nuclear Power Plant [71-PVP-50] (*A*) Ag 50, S 48
Wynveen, R. A.
Electrochemical Carbon Dioxide Concentrating System [71-Av-21] (*A*).....O 56

X

Xerox
Science-Oriented Computer (*BTR*).....Je 29
Xerox 840
Speeds Flow of Engineering Data (*BTR*) Ja 36
Xistris, G. D.
Failure Prediction Through the Theory of Stochastic Excursions of Extreme Vibration Amplitudes [71-Vibr-60] (*A*).....N 53
X-Rays
See also Radiology
X-Ray Tire Testers (*BTR*).....N 42

Y

Yachnis, M.
Certification for Material Safety of Hyperbaric Facilities [71-PVP-65] (*A*).....S 50
Yadigaroglu, G.
Fundamental and Higher-Mode Density-Wave Oscillations in Two-Phase Flow: The Importance of the Single-Phase Region [71-HT-13] (*A*) O 62
Yalamanchili, R. V. S.
Unsteady Flow About a Solid Cylinder Falling Through a Viscous Fluid Contained in a Vertical Tube [70-WA/FE-9] (*A*).....F 72
Yamashita, H.
Free-Convective Heat Transfer to a Supercritical Fluid [71-HT-27] (*A*).....O 62
Yand, A. T.
Dynamic Stability Analysis of Linkages with Elastic Members via Analog Simulation [70-Mech-48] (*A*).....Ja 51
Yand, J. C. S.
Stresses in Multilayered Structures Under High-Rate Pressure Loads [70-WA/UnT-14] (*A*) Je 46
Yang, An Tzu
Inertia Force Analysis of Spatial Mechanisms [70-Mech-5] (*A*).....Ja 46
Yang, I. M.
Calculation of Correlation Matrices for Linear Systems Subjected to Nonwhite Excitation [71-APMW-10] (*A*).....N 55
Yang, Jann-Nan
On the First Excursion Probability in Stationary Narrow-Band Random Vibration [71-APM-19] (*A*).....S 56
Yang, K. W.
Thermal Stresses in Thick-Walled Circular Cylinders Under Axisymmetric Temperature Distribution [71-PVP-16] (*A*).....Ag 51
Yang, W. H.
Indentation of a Circular Membrane [70-WA/APM-33] (*A*).....Je 47
Yanichko, S. E.
Use of Fracture Mechanics in Reactor Vessel Surveillance [70-WA/Met-3] (*A*).....My 52
Yann, LeRoy F. appointed plant manager for Cabot Piping Systems, Cabot Corp., Louisville, Ky.....Je 78
Yarden, A. L.
Design and Operation of Large-Scale Process Heat-Transfer Research Plants [70-WA/HT-21] (*A*) Ap 60
Yaroch, M. M.
The Crisis in Power-Plant Siting [based on 70-WA/Ener-12].....Je 10
Power-Plant Siting (*C*) (*AC*).....Ag 57
Changing Emphasis in the Siting of Steam Electric Power Plants [70-WA/Ener-12] (*A*) Ap 62
Yeh, Hsuan receives Fellow ASME certificate My 89
Hemodynamic Flow in Anisotropic, Viscoelastic Thick-Wall Vessels [70-WA/APM-59] (*A*) Je 49
Yew, C. H.
Wave Propagation in Viscoelastic Laminates [70-WA/APM-40] (*A*).....Je 47
Yield, Yielding
The Effect of Strain Rate and Temperature on Yielding in Steels [71-Met-R] (*A*).....S 55
Initial Yield Surface of a Unidirectionally Reinforced Composite [71-APMW-19] (*A*).....N 56
Yield Criteria and the Bauschinger Effect for a Plastic Solid [71-Met-P] (*A*).....S 55
Yield Strength
Experimental Effort on Bursting of Constrained Disks as Related to the Effective Utilization of Yield Strength [71-PVP-49] (*A*).....S 48
York, J. L. appointed to staff of Stearns-Roger Corporation's newly organized engineering-construction service to provide all types of pollution control.....Ja 105
York, W.
Economies of the Small Terminal Linked to a Time-Sharing Facility [71-DE-45] (*A*).....Ag 47
Yoshida, S.
Analysis of Turbulent Forced-Convection Heat Transfer to a Supercritical Fluid [71-HT-26] (*A*) O 62
Yoshino, R. T.
Plasma Treatment of Railway Rails to Improve Traction [70-WA/RR-1] (*A*).....Je 42
Young, J. F.
Ten Years' Progress in Management, 1960–1970
IV: Management Education
Management Education—Industrial, 1960–1969 [70-WA/Mgt-7] (*A*).....Mr 58
Young, W. E.
Laboratory Procedures for Evaluating High-Temperature Corrosion Resistance of Gas Turbine Alloys [70-WA/CD-2] (*A*).....Ap 65
Youngdahl, C. K.
The Effect of Pulse Shape on the Dynamic Plastic Deformation of Reinforced Circular Cylindrical Shells [71-PVP-31] (*A*).....Ag 53
Youth
As the President Sees It
Interfacing the Present with the Future...O 92
Yu, A. T.
Curtis Bay's New Ship-Barge Loader [70-WA/MH-4] (*A*).....My 54
Yu, H. S.
Flow Development in a Channel Having a Longitudinally Moving Wall [70-WA/APM-11] (*A*) My 58
Local Non-Similarity Thermal Boundary-Layer Solutions [71-HT-L] (*A*).....N 59
Yu, J. C. M.
Stress Distribution of a Cylindrical Shell Nonradially Attached to a Spherical Pressure Vessel [71-PVP-42] (*A*).....S 48
Yu, Yi-Yuan
Variational Equation of Motion for Coupled Flexure and Torsion of Bars of Thin-Walled Open Section Including Thermal Effect [70-WA/APM-51] (*A*).....Je 48
Yuan, M. S. C.
Kinematic Analysis of Spatial Mechanisms by Means of Screw Coordinates
Part 1—Screw Coordinates [70-Mech-13] (*A*) Ja 47
Part 2—Analysis of Spatial Mechanisms [70-Mech-14] (*A*).....Ja 47
Yugoslavia
Joint Information Project [with U. S.] (*NB*)..D 67
Petrochemical Complex (*OS*).....D 45
Yustinich, J.
Circumferential Traversing Technique for Intra-Stage Analysis of Axial Flow Compressors [71-FE-33] (*A*).....S 53

Z

Zaalouk, M. G.
Boiling-Curve Measurements from a Controlled Heat-Transfer Process [71-HT-J] (*A*).....N 59
Zalis, Albert A. elected vice-president, rotary and reciprocating engineering by Warren Pumps, Inc.....Je 78
Zappa, R. F.
Effect of Artificial Surface Roughness on Heat Transfer and Pressure Drop for a High Prandtl Number Fluid in Laminar Flow [71-HT-36] (*A*) O 63
Zappi, E.
Cryo-Immunology: The Antigenic Properties of the Male Rabbit Urogenital System as Studied by Selective Freezing of Its Components [70-WA/HT-19] (*A*).....Ap 60
Cryo-Immunology: Surgical Approach and Thermal Regimen for Freezing the Elements of the Male Rabbit Urogenital System [70-WA/HT-17] (*A*).....Ap 59
Zar, M.
Hydraulically Damped Motion of Gondola Cars [70-WA/RR-4] (*A*).....Je 42
Zaretsky, E. V.
Advanced Design Concepts for High Speed Bearings [71-DE-50] (*A*).....Ag 47
Rolling-Element Fatigue and Lubrication with Fluorinated Polyethers at Cryogenic Temperatures [70-Lub-17] (*A*).....Ja 44
Zdravkovich, M. M.
Circular Cylinder Enclosed in Various Shrouds [71-Vibr-28] (*A*).....N 50
Zeldin, B.
Developing Flow with Combined Forced-Free Convection in an Isothermal Vertical Tube [71-HT-6] (*A*).....O 61
Zelenski, R. E.
Identification of Failing Mechanisms Through Vibration Analysis [71-Vibr-90] (*A*).....N 54
Zerkle, R. D.
Variable Conductance Wall [71-HT-39] (*A*)..N 58
Zick, L. P. elected Chairman of ASME Boiler and Pressure Vessel Committee for a 3-year term.....S 98
Ziebarth, H. K.
Aircraft Gas Turbine Condition Analysis Instrumentation: Its Use for the Status Diagnosis of Naval Turbine Engines [71-GT-86] (*A*)....J1 41
Zinc
New Zinc-Air Battery (*OS*).....D 44
Zink, A. H. appointed an associate consulting engineer by Dow Chemical Co.....Ap 85
Zinner, K.
Power Increase and Reliability of Diesel Engines [71-DGP-11] (*A*).....Ag 49
Zircaloy
Zircaloy Reactor Vessel (*OS*).....D 44
Zirconium
See Nozzles
Zorrilla, E. P.
Determination of Aerodynamic Behavior of Cantilevered Stacks and Towers of Circular Cross Section [71-Pet-36] (*A*).....D 51
Zoubek, J. A.
Response of a Piped LMFBR to Primary System Pipe Rupture [71-NE-1] (*A*).....J1 42
Zouck, George H. deceased.....My 91
Zukas, J. A.
Laminated Transversely Isotropic Cylindrical Shells [70-WA/APM-53] (*A*).....Je 48
Zumwalt, G. W.
A Numerical Method for Predicting the Pressure History of a Sonic Boom Wave Incident on Arbitrarily Oriented Plane Walls [70-WA/APM-9] (*A*).....My 57
Zurn, Everett F. reelected to board of directors of Zurn Industries, Inc.....O 89
Zurn, Roger W. reelected to board of directors of Zurn Industries, Inc.....O 89
Zwicky, E. E., Jr. elected Fellow ASME..N 91
Zwiep, Donald N. elected Vice-President, ASME Education Department Policy Board 1972–1974.....N 86